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China and Japan's strategic nuclear relationship

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THESIS

CHINA AND JAPAN'S STRATEGIC NUCLEAR RELATIONSHIP

by

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September 2009

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While China and Japan individually have been the focus of tremendous study, until recently it was not necessary to compare their nuclear relationship. The advent of Japan's ballistic missile defenses has offered a unique twist on the traditional study between two nuclear powers. This thesis examines each country's strategic situation in this new light and maintains that the same theories about strategic interaction still hold. Lawrence Freedman's theory of "general deterrence" is particularly relevant; his theory finds two actors in conflict will react to opposing actors' force structure and policies despite their belief that there is no military solution to their situation.

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CHINA AND JAPAN'S STRATEGIC NUCLEAR RELATIONSHIP

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ABSTRACT

While China and Japan individually have been the focus of tremendous study, until recently, it was not necessary to compare their nuclear relationship. The advent of Japan's ballistic missile defenses has offered a unique twist on the traditional study between two nuclear powers. This thesis examines each country's strategic situation in this new light and maintains that the same theories about strategic interaction still hold. Lawrence Freedman's theory of "general deterrence" is particularly relevant; his theory finds two actors in conflict will react to opposing actors' force structure and policies despite their belief that there is no military solution to their situation.

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I would like to acknowledge all my friends and family who listened to me go on about this for four years. Their encouragement has been invaluable.

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I. INTRODUCTION

A. PURPOSE

In 1922, five great powers met to stop an arms race by mutually agreeing to restrict the number of battleships and prevent any ensuing escalation.[1] Decades later, the two superpowers of the world agreed in the Strategic Arms Limitation Treaty (SALT) to limit their nuclear weapons in order to stop a dangerous arms race and avert global thermonuclear war. Where war's currency was once battleships, it had now become strategic missiles.[2] A security dilemma created both of these situations. Each state attempted to increase its own security with respect to a second state, the unintended consequences of which resulted in the second state responding in kind, actually decreasing the first state's security. A similar situation is present today in the modern world's longest lasting antagonistic relationship. China and Japan continue to refuse to address the core security issues between them and are instead fielding missiles against each other.

China's recent development and fielding of the DF-31A missile improves the range of its strategic forces, provides for possible multiple independent reentry vehicle (MIRV) capability of up to three warheads, and may be equipped with penetration decoy aids to defeat missile defense. In comparison, Japan newly tested the SM-3 in December 2007. The SM-3 is the most technologically advanced missile of the day, with the ability to destroy a ballistic missile in space. These recent developments in the strategic capabilities of Japan are indicative of a new, emerging strategic relationship between China and Japan. The strategic balance between the two countries is difficult to ascertain due to the complexities and differences in weapon systems employed by both sides. China views the nascent nuclear ability of Japan as real. Japan views China's modernization of its military and nuclear arsenal as threatening to regional stability and

[1] The Washington Naval Treaty, or the "Five-Power Treaty" limited the naval forces of each country and is generally believed to have delayed the Second World War.

[2] This situation is initially compared in Hedley Bull, *The Control of the Arms Race: Disarmament and Arms Control in the Missile Age* (Ann Arbor: University of Michigan Press, 1967).

to itself. Japan's new ballistic missile defense system complicates the relationship by devaluing China's nuclear deterrent. Both China and Japan are attempting to increase their own security, but in responding to each other's actions, they are only provoking a decrease in their own security. Each side views the other with political suspicion as potential military opponents.

The purpose of this thesis is to analyze the strategic relationship between China and Japan. The new strategic tension generated by the Japanese ballistic missile defense (BMD) concerns China more than any other power, but how China views the emerging strategic balance remains unclear. In principle, deterrence theory should govern how both nations relate to each other. This thesis will ask if it does.

B. IMPORTANCE

The strategic tension between China and Japan has not attracted a great deal of attention. Certainly, on individual issues, authors have assessed the relationship between the two countries.[3] A comprehensive examination of the nuclear and strategic balance however, has not been attempted. This thesis attempts to fill that gap. It summarizes the strategic capabilities of both China and Japan and describes the policies and perceptions fueling those capabilities. This strategic tension is reminiscent of a brewing cold war with Asian characteristics. In that regard, a relationship between two countries whose security perceptions are hostile and who have made calculated decisions to avoid conflict instead of coexisting peacefully defines a cold war. Although there have been few if any cases of immediate deterrence between China and Japan for decades, both countries are engaging in general deterrence.[4]

[3] Recent analyses of the changing security relationship between China and Japan are: Peter J. Katzenstein, "Rethinking Asian Security: A Case for Analytical Eclecticism" in *Rethinking Security in East Asia: Identity, Power and Efficiency* ed. J.J. Suh, Peter J. Katzenstein, and Allen Carlson (Stanford: Stanford University Press, 2004), 1–33; Peter J. Katzenstein, "Beyond Japanization: Regionmaking in East Asia" in *Beyond Japan: East Asian Regionalism* ed. Peter J. Katzenstein and Takashi Shiraishi (Ithaca: Cornell University Press, 2006); David Shambaugh, *Power Shift: China & Asia's New Dynamics* (Berkeley: University of California Press, 2005).

[4] Freedman defines immediate deterrence as occurring during times of crisis when one side is mounting an attack while the other is mounting a threat of retaliation to prevent it.

According to Lawrence Freedman,[5]

> At times of general deterrence, each side's force structure will be shaped by a variety of economic, technical, cultural, and political factors, as well as an assessment of the other's force structure. General deterrence involves an institutionalized perception by a state that, despite continuing antagonism, it should not expect to be able to resolve its disputes with another state by military means.

This thesis identifies the strategic assets both sides possess, the manner in which these forces interact, and the institutionalized strategy each state deploys to assess the validity of a picture of the two countries engaged in what Freedman defines as general deterrence. The resulting analysis reveals both countries are engaged in an antagonistic relationship in which neither country believes it can currently solve. What follows encompasses the economic, technical, cultural and political factors and assessments of each side's force structure. In essence, this thesis is a case study for general deterrence theory based on the relationship between Japan and China.

This study is important because deterrence literature extensively studies common strategic relationships such as that between the United States and the former Soviet Union, but the possibility of nuclear war is not limited to nuclear warfare between only nuclear powers. The new dimension of defensive strategic capabilities not only adds more complexity to current strategic relationships; it also broadens the number of strategic relationships to include "defense heavy" countries like Japan and Korea.[6] The literature has not given the strategic relationship between China and Japan much thought, but even a cursory glance reveals that it now deserves attention. No other countries have the brutal history and simmering animosity these two countries have, and no security relationship is more important for East Asia than the one between China and Japan. Their relationship is critically important to peace in the East Asian region. For decades, the nuclear weapon was the only military edge China possessed against Japan; Japan's effort to develop BMD threatens that edge.

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[5] Lawrence Freedman, *Deterrence* (Cambridge: Polity Press: 2004), 42.

[6] The 2002 U.S. Nuclear Posture Review expanded the traditional definition of the nuclear triad by adding strategic defensive capabilities and precision non-nuclear strike forces.

C. LITERATURE REVIEW

At present, no literature directly assesses Sino-Japanese strategic relationship, although there is much supporting literature that creates a framework for such study. The Japanese nuclear weapon issue is divided into two camps: those who believe Japan's search to become a normal country may also result in a nuclear Japan and those who believe it is impossible to conceive of a nuclear Japan.[7] Matake Kamiya states that numerous technological and political problems prevent Japan from developing nuclear weapons in the near future.[8] Benjamin Self and Jeffrey Thompson support this argument by detailing the intent, capabilities, and nonnuclear components that show that Japan is not preparing for a nuclear breakout.[9] Their argument, however, has problems because each area Self and Thompson covers proves only how capable the Japanese could be at developing a nuclear weapon. Self and Thompson admit to as much in their conclusion, but maintain that Japan has no expertise in bomb or warhead design, bomber technology, no suitable submarine technology (which is patently false), and, most importantly, no institutionalization in its command and control.

Japan does have weaknesses in each of these areas, but recent changes in Japan's military policy, force structure, and investment in BMD reflect a need for a re-assessment in Japan's nuclear capability. In the same book, Katsuhisa Furukawa shows the evolving debate in Japan concerning the nuclear option.[10] He concludes that pragmatic discussion of the nuclear option and Japan's strategic interests is healthy and that these interests are changing with Japan's security environment. Therefore, a domestic re-evaluation of traditional Japanese positions on the nuclear issue is worthwhile. For instance, Furukawa

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[7] Jennifer M. Lind, "Pacifism or Passing the Buck? Testing Theories of Japanese Security Policy," *International Security*, Vol. 29, No.1 (Summer 2004), 92–121.

[8] Matake Kamiya, "Nuclear Japan: Oxymoron or Coming Soon?" *The Washington Quarterly*, Vol. 26, No.1 (Winter 2002).

[9] Benjamin Self and Jeffrey Thompson, "Nuclear Energy, Space Launch Vehicles, and Advanced Technology: Japan's Prospects for a Nuclear Breakout," in *Japan's Nuclear Option: Security, Politics, and Policy in the 21st Century*, ed. Jeffrey Thompson and Benjamin Self (Washington, The Henry L. Stimson Center, 2003), 148–176.

[10] Katsuhisa Furukawa, "Nuclear Option, Arms Control and Extended Deterrence: In Search of a New Framework for Japan's Nuclear Policy," in *Japan's Nuclear Option: Security, Politics, and Policy in the 21st Century*, ed. Jeffrey Thompson and Benjamin Self (Washington, The Henry L. Stimson Center, 2003), 95–147.

touches on the deterrence value of the nuclear option with regards to China, but does not fully integrate China's perceptions into Japan's strategic position. This is important because Japan's strategic position has changed dramatically with the introduction of a missile defense system.

Missile defense is the key strategic issue. It is Japan's first foray into an independent strategic asset. As Japan is not technically a nuclear state, this aspect of Japan's strategic orientation is interesting and revealing. But thus far, experts limit discussions to its implications for U.S.-Japan missile defense cooperation and hardly, if ever, view the situation through a bilateral relationship between China and Japan.[11] Christopher Hughes lays out the discussion of these issues in Japan and the implications for the Sino-Japanese relationship, but he and the Japanese analysts he cites dismiss Japan's nuclear option as highly unlikely.[12] They fail to integrate the missile defense issue and Japan's virtual nuclear state as a singular strategic threat. Japan may be an example of a new type of strategic threat: a state not only capable of creating a strategic arsenal in months, but also of maintaining a defensive capability. Most government thinktanks and other international security institutions all take note of China's negative reaction to Japan's military modernization and BMD.[13] Clearly, for them, it is a simple issue. China is content with Japan's lower-tier BMD system and worries that Japan's may

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[11] Umemoto Tetsuya, "Japan–U.S. Cooperation in Ballistic Missile Defense" (James Martin Center for Non-Proliferation Studies, 2002), available online at cns.miis.edu/pubs/; Internet; accessed 28 February 2009; Adam Ward, "Japan's New Defense Posture: Towards Power Projection, IISS Strategic Comments, (International Institute for Strategic Studies, October 2004), available from www.iiss.org/stratcom; Internet; accessed 20 July 2006.

[12] Christopher Hughes, "Sino–Japanese Relations and Ballistic Missile Defense" *CGSR Working Paper 64/01* (Centre for the Study of Globalisation and Regionalisation: The University of Warwick. January 2001); available from http://www.csgr.org; Internet; accessed 6 June 2009.

[13] Center for Nonproliferation Studies, "China's Opposition to US Missile Defense Programs," (Monterey Institute for International Studies, 2006); available from http://cns.miis.edu/research /china/chinamd.htm; Internet; accessed 24 October 2008; Eric McVadon, "Chinese Reactions to New U.S. Initiatives on Missile Defense," in *China's Growing Military Power: Perspectives on Security, Ballistic Missiles and Conventional Capabilities* ed. Andrew Scobell and Larry M. Wortzel (Strategic Studies Institute, Army War College, 2002); Brad Roberts, "China and Ballistic Missile Defense: 1955 to 2002 and Beyond" (Alexandria: Institute of Defense Analysis, 2003); Adam Ward, "Japan's New Defense Posture: Towards Power Projection, *IISS Strategic Comments* (International Institute for Strategic Studies, October 2004); available from http://www.iiss.org/stratcom/; Internet; accessed 20 July 2006; IISS Strategic Comments, "The Military Balance," in *Japan's New Defense Posture: Towards Power Projection* (International Institute for Strategic Studies, October 2004); available from http://www.iiss.org/stratcom; Internet; accessed 20 July 2006.

deploy its Aegis mid-tier system to protect Taiwan. Although China has been relatively silent on this issue recently, this may be due to recent technological advancements in Chinese missile technology. Brad Roberts's study of missile defense for the Institute of Defense Analysis is the most detailed in the field and he offers a very compelling paper on the Chinese evolution of thought concerning BMD.[14] He takes a thoroughly realist position, pointing out that China must ensure its second-strike capability, must respond to shifts in the Sino-U.S. strategic relationship, and must also ensure the stable maintenance in global power distribution. Robert's belief in China's realist approach may be reassuring to U.S. policy makers, but it does little to explain China's vehement reaction to Japan's involvement in BMD research.

The nuclear debate in China started before it tested its first nuclear bomb. A few authors believe the debate about whether the bomb was useful at all shaped the present Chinese policies of no first use and minimum deterrence.[15] The Chinese have debated minimum deterrence versus limited deterrence at least for the past decade.[16] Numerous China analysts have posited that a shift to limited deterrence capability may still be a long way off. According to Johnston, "While the data on extant Chinese operational nuclear capabilities, targeting and launch doctrine are extremely poor, it is fairly safe to say that Chinese capabilities come nowhere near the level required by the concept of limited deterrence."[17]

The most recent assessment of China's deterrence strategy is Jeffrey Lewis's study, "The Minimum Means of Reprisal," which postulates that the Chinese perception centers on a belief that nuclear weapons provide more of a security benefit than Western

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[14] Brad Roberts, *"China and Ballistic Missile Defense: 1955 to 2002 and Beyond"* Alexandria: Institute of Defense Analysis. September 2003.

[15] John Wilson Lewis and Xue Litai, *China Builds the Bomb* (Stanford: Stanford University Press, 1991); Jeffrey Lewis, *The Minimum Means of Reprisal: China's Search for Security in the Nuclear Age* (Cambridge: MIT Press, 2007); Avery Goldstein, *Deterrence and Security in the 21st Century: China, Britain, France, and the Enduring Legacy of the Nuclear Revolution* (Stanford: Stanford University Press, 2000).

[16] Paul Godwin and John Schulz, "Arming the Dragon for the 21st Century: China's Defense Modernization Program," *Arms Control Today* (December 1993): 6; John Wilson Lewis and Xue Litai, *China's Strategic Seapower* (Stanford: Stanford University Press, 1994).

[17] Alastair Iain Johnston, "Prospects for Chinese Nuclear Force Modernization: Limited Deterrence Versus Multilateral Arms Control," *China Quarterly* (June 1996): 552–558.

nations believe.[18] This different view of nuclear strategy results in a different need for capability. Lewis concludes that the Chinese are more willing to sacrifice offensive capability for greater political control and lower economic costs. And like Jeffrey Lewis, Sun Xiangli (2005) believes China has maintained a consistent framework of nuclear policy that is based on a clear understanding of the nature of nuclear weapons.[19] The point being China's psychological belief in the different nature of nuclear weapons ultimately drives strategy and capability.

But there are stronger realist views that China's nuclear strategy is not one of "minimum" deterrence but is focused on a capability sufficient to meet current national security needs as Evan Medeiros argues.[20] The evidence lies in the fact that China is working to improve the survivability of its nuclear forces and to defeat missile defense systems.[21] Avery Goldstein addresses the broader neo-realist perspective by stating that Chinese grand strategy is a calculated decision to reduce the risk that the world perceives a rising China as a threat that must be countered.[22] What neither Goldstein and Medeiros or Xiangli and Lewis address is how Chinese strategy is affected by the new Japanese missile defense strategy and its changing nuclear option.[23] And moreover, there have been no case-study assessments of whether Freedman's new idea of constructivist deterrence theory explains Chinese developments and actions.

This thesis will pick up where these authors have left off, using the concepts of China's modernization and Beijing's belief in the psychological effects of nuclear

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[18] Lewis, *Minimum Means of Reprisal*, 11.

[19] Sun Xiangli, "Analysis of China's Nuclear Strategy," *China Security* 1 (Autumn 2005), 23–27.

[20] Evan S. Medeiros, "Evolving Nuclear Doctrine," in *China's Nuclear Future*, ed Paul J. Bolt and Albert S. Willner (London: Lynne Rienner Publishers, 2006), 39–78.

[21] Godwin and Shulz, Arming the Dragon; George Perkovich, "The Nuclear and Security Balance," in Francine R. Frankel and Harry Harding, eds., *The India–China Relationship: Rivalry and Engagement* (New Delhi: Oxford University Press, 2004); Phillip Saunders and Jing Dong Yuan, "Strategic Force Modernization," in *China's Nuclear Future*, ed Paul J. Bolt and Albert S. Willner (London: Lynne Rienner Publishers, 2006) 79–118.

[22] Goldstein, Deterrence and Security; Avery Goldstein, *Rising to the Challenge: China's Grand Strategy and International Security* (Stanford: Stanford University Press, 2005).

[23] Michael Pillsbury, *China Debates the Future Security Environment* (Honolulu: University Press of the Pacific, 2005); Gu Guoliang, "Missile proliferation and Missile Defense in North–East Asia," *Disarmament Forum, North East Asian Security* 2005, no. 2.

weapons on deterrence. This thesis will ultimately use Lawrence Freedman's new constructivist ideas of deterrence to describe the Sino-Japanese relationship.

By reviewing Japan's nuclear and missile defense capabilities, evaluating the current Japanese debate on nuclear weapon policy, and drawing conclusions on Japan's possible nuclear strategy, a much clearer picture of Japan's deterrence posture and its effects on its relationship with China will emerge. Then, an examination of the Chinese nuclear capability with a Japanese paradigm in mind and its responses to the Japanese ballistic missile defense system will illuminate China's policy of minimum deterrence in terms of its affect on Japan's strategic decision making. Finally, using Lawrence Freedman's deterrence theory, this thesis describes the Sino-Japanese nuclear relationship in terms of social norms and internalized boundaries. Ultimately, the Sino-Japanese nuclear relationship is best explained not by balances of power or international institutions, but by commonly agreed-upon social norms that have been established over decades. It is these core issues and analysis of the nuclear relationship's boundaries that best predicts whether future decisions will lead to conflict.

D. METHODOLOGY AND SOURCES

The methodology used in this thesis is primarily a factual analysis of the current capabilities, using general deterrence theory to describe the international relationship. The underlying assumption is that a nation's military capabilities say much about its intentions and strategy. Sources include official documents from both Japan and China concerning nuclear assets. This thesis analyzes statements by Japanese and Chinese officials on the orientation of strategic assets, including commentary on these sources, to determine the strategic orientation of each country. Deterrence theory is used to describe and to build upon the strategic framework outlined by the Chinese and Japanese sources.

II. STRATEGIC CAPABILITIES, POLICIES, AND PERCEPTIONS FOR JAPAN

A. INTRODUCTION

Japanese beliefs regarding the nature of security competition run deep. Prior to the Meiji Restoration in 1868, the caste system divided Japanese society. And in many respects Japan still is a socially divided country. The Japanese military and conservative establishment see themselves as defenders and guardians of traditional Japanese life, culture and values. And one of the critical lessons for the conservatives is the story of two men prepared to start a battle to prevent surrender. From the Hagakure, Yamamoto writes:

> When a castle is being surrendered, as long as there are one or two men within it who are determined to hold on, the defending forces will not be of one accord, and in the end no one will hold the castle. In the taking of the castle, if when the man who is to receive it approaches and the one or two men who are determined to hold on to it lightly fire on him from the shadows, the man will be alarmed and the battle will be on. In such a case, even though it is unwillingly done, the castle will have to be stormed. This is called being force to besiege a castle by those besieged.[24]

The resulting belief is that as long as there are a few resolute defenders in the whole of Japan, they will be properly prepared for any attack and surrender will never be necessary. Conservatives in Japan retain these beliefs down to the present. One of the reasons they so strongly endorse a nuclear capability is to ensure their country is capable of defending itself despite the public's aversion to war and its devices. In policy, Japan maintains its nonnuclear status; but just enough doubt remains legally for Japan to embrace nuclear weapons should it be necessary. In capability, this means the research Japan conducts in nuclear technology can be used not only for peaceful means but also for use in wartime. Japan would only use such weapons when absolutely necessary to defend the country despite the general public's attitude in a conflict. These two men with

[24] Tsunetomo Yamamoto, *Hagakure*, trans. William Scott Wilson (New York: Stackpole Books, 2002), 140.

nationalistic spirit are ready to defend Japan or even start wars to prevent the humiliation of their country. Conservative factions in Japan promote robust capabilities in each sub-area of Japan's "virtual" nuclear capability and missile defense system. These are enhanced while the overall demeanor of Japan is of one committed to a non-nuclear state. But the details reveal a different picture of Japan.

This thesis argues that Japan views China in an antagonistic security relationship, which has resulted in the implicit effort by the Japanese to maintain a "virtual" nuclear capability. Further, if Japan does decide to develop nuclear weapons, then it is capable of fielding a force in a surprisingly short amount of time.

This thesis will support this argument by starting with Japanese policy concerning nuclear weapons and how the policy is not as restrictive as it initially appears. Then we will deal with each sub-area of the requirements for building and fielding a nuclear weapon. First, Japan's pursuit of resource independence has coincidentally provided Japan with a highly technological and proficient source for nuclear weapons material. Second, is the requirement to develop a method to deliver the weapon. Third, Japan requires a basic intelligence system to recognize and classify nuclear threats as well as field a capable command and control system. Lastly will be a concise evaluation of Japan's missile defense system and how it affects Japan's strategic capability. Finally, the conclusion will consist of an assessment of Japan's possible nuclear strategy and the implications on the aspect of Japan's strategic deterrence.

In each of these areas, this thesis will illustrate the existence of a careful, independent and deliberate intention to ensure Japan has the future choice to develop nuclear weapons. This development "threat" plays a part in Japan's unspoken nuclear deterrent strategy. The other part is played by Japan's missile defense system.

B. JAPANESE NUCLEAR POLICY

No laws explicitly restrain Japan from developing nuclear weapons. The literature often cites Article 9, Chapter 2 of the Japanese constitution as the source restraining Japan from developing nuclear weapons: "Land, sea, and air forces, as well as other war

potential, will never be maintained."[25] But, in reality, Japan does field forces with undeniable war potential and will reinterpret the Japanese constitution as necessary in the development and employment of weapon systems. Japan originally deployed the Self-Defense Force with the specific goal of providing for Japan's internal defense. But even these forces have slowly expanded the reach and scope of their operations in Japan's slow but deliberate "normalization."[26] Other less notable changes in the structure of the Self Defense agencies illustrate Japan's current commitment to re-enter the world stage as a normal country.[27] In the current Japanese interpretation of Article 9, development of weapons employed in the country's defense is allowed. But the purchase, development, or fielding of weapons that could be used to attack foreign sovereign territory is restricted. Even though this interpretation has broadened considerably throughout the years, it still has prevented Japan from purchasing land attack cruise missiles (i.e., Tomahawk Land Attack Missiles [TLAMs]). In each case of purchasing weapons and employing them, Japan looks at the political ramifications on Article 9 and the intent behind its wording.

Japan has passed other laws that seemingly prevent the development of nuclear weapons. The Japanese Diet passed a law in 1955 stating, "The research, development, and utilization of atomic energy shall be limited to peaceful purposes" (Atomic Energy

[25] The Constitution of Japan, art. 9, ch. 2.

[26] This deliberate normalization is best illustrated by Japan's participation in multilateral operations and exercises. Japan has traditionally only participated in multilateral events like RIMPAC with the understanding it communicates with only the United States. This has changed recently with the Indian, Japanese, and U.S. multilateral exercise in Malabar in 2007, followed by multilateral exercises with the United States and Australia and the United States and Korea. And the 2009 deployment of JMSDF ships to the Indian Ocean to join the multilateral task force against piracy not a sentence.

[27] Japan's Self Defense Force has undergone profound changes in 2007 with Japan's Defense Agency (JDA) became a full cabinet ministry with the title of Ministry of Defense (MOD) . In addition the Joint Staff Office (JSO) has been created to mimic the advantages of a joint force in U.S. doctrine. In 2008, the Japanese Maritime Self Defense Force reorganized its structure to allow for quicker command and control by the JSO and Commander-in-Chief Self-Defense Fleet (Kaiju Jeitai/CINCSDFLT). And in 2006, the naming convention for Japanese naval ships was changed from Japanese Defense Ship (JDS) to simply Japanese Ship (JS). These seemingly individual innocuous changes taken together form a picture of a normalizing country.

Basic Law, 1955).[28] Still, even this law does not explicitly prevent Japan from developing nuclear weapons for the country's defense, which might be interpreted as consistent with "peaceful use." The closest preventive policy is a 1968 Diet resolution, the "Three Non-Nuclear Principles," which states that Japan shall neither possess nor manufacture nuclear weapons and nor shall it permit their introduction into Japanese territory. Although these and other policy statements affirm Japan's commitment to remaining a nuclear weapon-free state, the diet resolution is not legally binding and has comparatively the same weight as a congressional resolution; therefore there is nothing to overturn and as a consequence nothing preventing Japan from developing nuclear weapons. A similar issue was the recent revelation that the Japanese expressly turned a blind eye towards U.S. deployments of nuclear weapons in the 1950s and 60s. Japan's signatory status to the Nuclear Non-Proliferation Treaty presents a problem, but every country retains the right to opt out of the treaty given three months' notice, as the North Korean's have shown repeatedly. All of these policies designate Japan as a non-nuclear state, but all of these policies can be overturned. If the Japanese populace and world opinion is given the right security environment and a positive "spin" on the reasons for such an action there is nothing that could stop Japan from developing and fielding nuclear weapons.

Japanese right-wing activists have maintained that even nuclear weapons are defensive. In fact, recent statements by the Japanese government reaffirm this position. Responding to earlier statements by the Defense Agency that Japan will retain the legal possibility of developing nuclear weapons in the future, the prime minister of Japan, Koizumi, stated, "It is significant that although we could have them, we don't."[29] Current laws do not prevent Japan from developing nuclear weapons. Furthermore, these recent statements reflect a trend towards greater leniency for the development of nuclear weapons. A small, powerful minority in Japan associated with the conservative wing of the Liberal Democratic Party has kept alive this small but important possibility.

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[28] Japan. Japanese Diet. *Atomic Energy Basic Law* (1955); available from http://www.jaea.go.jp /jnc/kaihatu/hukaku/english/atomiclaw.htm; Internet; accessed 20 July 2006. The Atomic Energy Basic Law sets out that Japan has the right to pursue research in the nuclear field as long as this research is for peaceful purposes only.

[29] Joji Sakurai, "Koizumi Clarifies Japan's Nuclear Stance," *Associated Press*, 10 June 10 2002.

C. DESCRIPTION OF JAPAN'S VIRTUAL NUCLEAR WEAPON

Experts have referred to Japan as a virtual nuclear power. This nascent capability requires a more specific and detailed examination of each component required for a viable nuclear deterrent. A country must have the facilities to produce nuclear material, an inventory of fissile material, a warhead delivery system, and an effective command system to make the deterrent viable.

1. Nuclear Energy

The Japanese virtual nuclear weapon capability starts with the facilities Japan maintains for its nuclear energy self-sufficiency. It is no surprise that to produce nuclear weapons the most important requirement is the manufacture of fissile material. Without outside assistance, most countries spend decades developing the necessary expertise and facilities to create weaponized material. In Japan, the existing highly technological nuclear energy program would make it easy to develop nuclear weapons.[30] The ultimate impact of which is to strengthen Japan's status as a "virtual" nuclear power. Not something that can be developed overnight, Japan dedicated decades of research to a solution to the Japan's dependency on outside energy sources. As with most problems, Japan has sought to address its overseas energy dependency through technological advancements. Japan's fast breeder reactors (FBRs) and plutonium-uranium mixed oxide (MOX) fuel processing programs is an effort to rid itself of foreign energy dependency.[31] The unintended consequence results in a large domestic stockpile of nuclear material.[32] Unintended or not, this strengthens Japan's virtual nuclear weapon status.

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[30] For a detailed analysis on converting the reactor class plutonium for weapons, J.C. Mark, "Explosive Properties of Reactor-Grade Plutonium," *Science and Global Security*, Vol.4, No. 1, 1993, 111–128.

[31] Tatsujiro Suzuki, "Global Nuclear Future: A Japanese Perspective," (Melbourne: Nautilus Institute, 2006) available from http://www.globalcollab.org/Nautilus/australia/apsnet/reports/2006/0601t-suzuki/; Internet; accessed 6 May 2009.

[32] Gavan Mccormack, *Client State: Japan in the American Embrace* (London: Verso, 2007), 182–183; Self and Thompson, "Nuclear Energy," 166.

In 1977, Japan started the one of the first research nuclear reactors to generate MOX fuel.[33] MOX fuel is an alternative to the low-enriched uranium normally used in nuclear reactors in which the spent fuel from nuclear reactors is recycled and mixed with depleted uranium. Used reactor material must be reprocessed. Although a majority of reprocessing this material into MOX takes place overseas, Japan began operating a small reprocessing site in 2007 to maintain develop a domestic MOX processing facility.[34] The reprocessing site can also serve as a weapons-grade material reprocessing site. However, even reprocessing sites require nuclear material. The FBRs that produce more nuclear material than they consume are the solution to this problem.

Without an indigenous supply of nuclear material, Japan relies on the success of its FBRs to generate or breed more fuel than it consumes, creating a domestic closed cycle for reactor fuel and, therefore, energy self-sufficiency.[35] The Japanese government has given Mitsubishi Heavy Industries (MHI) the goal to advance the current Japanese FBR program beyond its experimental and prototype reactors with the construction of a demonstration reactor by 2025 and commercial reactors by 2050.[36] FBR technologies can be used to extract weapons-grade plutonium; they may also be used as alternatives to MOX reprocessing centers for sources of fissile material. It is not clear what additional

[33] The World Nuclear Association has a detailed factual history and current status of every nuclear country. Japan's nuclear energy program can be found in World Nuclear Association, Nuclear Power in Japan, May 2009; available from http://www.world-nuclear.org/info/inf79.html; Internet; accessed 6 June 2009.

[34] Lawrence M. Lidsky and Marvin M Miller, "Nuclear Power and Energy Security." A Revised Strategy for Japan," (Melbourne: Nautilus Institute, 1998); "Weapons of Mass Destruction: Tokai," 28 April 2005, available from http://www.globalsecurity.org/wmd/world/ japan/tokai.htm; Internet; accessed 6 June 2009; "Weapons of Mass Destruction: Rokkasho," 28 April 2005, available from http://www.globalsecurity.org/wmd/world/japan/rokkasho.htm; Internet; accessed 6 June 2009.

[35] As detailed in the World Nuclear Association's country fact sheet, Japan is determined to persevere with the Monju FBRs restart in late 2009.

[36] Yukihide Mori, Hiroshi Sagawa, Kazuhiko Kuroda, Tatsuhiro Yoshizu, "Mitsubishi Activities for Nuclear Fuel Cycle Development," *Technical Review* 45 no.1 (2008), 54.

steps would be required to use one of the fast breeder reactors for the production of weapons grade PU-239, but they do not seem to be insurmountable.[37]

Of course, nuclear fuel alone is not enough for a stable nuclear weapons program. In order for Japan to produce nuclear weapon material, facilities would have to undergo changes, weapons-grade material would have to be stored and Japanese nuclear civilian engineers would have to participate. The next sections will deal with the specific material Japan already has and what changes that would be required to develop an indigenous nuclear weapons program.

2. Fissile Material

The main source of nuclear weapons is Pu239. MOX fuel and Japanese FBRs use Pu239 in substantial amounts to create nuclear energy. However, there is a very clear difference. Nuclear weapons require very specific fissile material and Plutonium 239 (Pu239) is the preferred source material for nuclear weapons. The difference between Pu239 weapons-grade and Pu239 energy-grade material is only a small difference in quality.[38] Pu239 forms Pu240 through the absorption of one neutron, resulting in a less fissile material. In general, the U.S. Department of Energy classifies plutonium into grades based on the percentage of Pu240 content in any sample. Weapons-grade material has content of less than 7% while reactor-grade material has a much greater content, 19%. Recent revelations by the U.S. Department of Energy revealed that reactor-grade material could be weaponized.[39] If Japan decided to use reactor grade material, then a more finely-tuned weapons design would be required; even so, this solution would only be useful in a short time frame situation. Over the longer term, Japan does have the

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[37] A discussion by Jeffrey Lewis can be found at Armscontrolwonk.com, "Safeguarding Breeder Reactors," 24 January 2006, available at http://www.armscontrolwonk.com/955/safeguarding-breeder-reactors; Internet; accessed on 6 June 2009. The following authors deal with guarding the Japanese FBRs specifically because of proliferation concerns: Hashimoto et al., "Development of Plutonium Fuel Monitors for the Experimental Fast Reactor JOYO," Proceeding of a Symposium on International Safeguards, IAEA-SM-333/51, 427–438, Vienna, 14–18 March 1994; Usami et al, "Safeguards in Prototype Fast Breeder Reactor Monju," 5th International conference on Facility Operation-Safeguards Interface, Jackson Hole, 24–29 September 1995.

[38] Self and Thompson, "Nuclear Energy," 165.

[39] Stephen Schwartz, "Hazel O'Leary Does Us a Favor by Declassifying Data," *The Washington Times*, September 24, 1996.

reprocessing ability to create weapons-grade Pu239 at its Tokai reprocessing facility, and, therefore, has the capability to produce material for higher quality nuclear weapons.[40]

Japan has abundant and growing nuclear material reserves due to the problems encountered recently by the civilian power program. Self speculates that these reserves have the potential to produce between 162 and 421 nuclear weapons with reprocessing.[41] Thompson and Self also conclude that the number is realistically towards the low end due to the time and expertise required to create weapons from this material.[42] However, Japan's numbers are set to increase further now that MHI has restarted the FBRs; and these numbers show no sign of decreasing until a number of advanced reactors begin coming online in 2010.[43]

The simple fact is that Japan possesses more than enough material to produce a sizable number of nuclear weapons. But due to Japan's signatory status in the NPT, Japan has pledged not to weaponize any fissile material it creates and is under IAEA safeguards, complicating any covert program. This means that Japan will most likely avoid any nuclear testing and will have to resort to the U.S. method of testing using computer programs. Self and Thompson also point out that current laws forbid Japan's engineers from researching nuclear weapons. Moreover, all of Japan's facilities are subject to inspection by the International Atomic Energy Agency.[44] These restrictions on weapons testing and arms control agreements are no small matter and remain obstacles to

[40] MHI restarted the plant in 2000 despite an incident at the Tokai reprocessing facility in 1992. As a commercial reprocessing facility capable of producing weapons-grade material it is monitored closely by the International Atomic Energy Agency.

[41] Self and Thompson, "Nuclear Energy," 164.

[42] Self and Thompson, "Nuclear Energy," 165.

[43] Japan Atomic Energy Agency. JAEA press release; available from http://www.jaea.go.jp/english /news/090514/index.shtml; Internet; accessed 20 June 2009.

[44] Self and Thompson, "Nuclear Energy," 165.

policy makers. However, a threatening security climate could cause Japan to conduct computerized weapon's testing and withdraw from the NPT.[45]

3. Delivery Systems

The second most difficult requirement for nuclear weapons is the delivery system. Most advanced countries mitigate this cost by modifying conventional long-range strike weapons. But, Japan does not possess a notable strike capability and is prevented from possessing offensive weapons. To be considered a virtual nuclear state, Japan has had to invest in civilian delivery technology. Japan has not only been one of the few countries to independently maintain its own civilian space program but also ensures its space program matches many other countries including the United States.

Most of the nuclear countries of the world depend on ballistic missiles as the main delivery system. The United States no longer maintains its bombers on any alert status, and both China and Russia have allowed their bomber fleets to fall into disrepair. Japan, too, does not have viable aircraft for the delivery of strategic nuclear weapons. JASDF's F-4's and the JSF are dual-capable aircraft, but they should not be considered a viable delivery vehicle due to China's extensive anti-air warfare capabilities. Japan, however, is extremely familiar with building rockets and should have no trouble transitioning their missile technology from peaceful use to wartime use.

Japan relies on a two-stage liquid-fueled rocket (H-2A) to launch most of its satellite payloads. The H-2A relies on solid booster rockets to amplify the range and weight capacity of the launch system. Although not entirely suitable for a viable nuclear deterrent due to its ??, the H-2A does have the range for a nuclear mission and a very accurate inertial guidance system that can be applied to a nuclear mission if no other

[45] Although there is no question that Japan has the technological understanding to produce a gun-type HEU atomic bomb, there would be limited military uses for such a weapon. Any thermonuclear weapons Japan produces would require some testing since no country (including Israel) has fielded nuclear weapons without testing. The Los Alamos National Laboratory details the hurdles required for the U.S. to field new nuclear weapons without testing in 1666, "W88 Pit Certification without Testing," (Los Alamos: August 2007) available at http://www.lanl.gov/news/index.php/fuseaction/1663.article/d/20078/id/11870; Internet; accessed on 6 June 2009.

options are present.[46] The PRC used liquid fueled missiles as a minimum deterrent for decades, so for Japan to field a small number of liquid-fueled missiles while developing a more developed solid-state missile is conceivable. Liquid-fueled missiles are inexpensive and quick to manufacture, which makes them easy to modify for a range of targets. For instance, the H-2A is capable of an extremely large throw weight (up to 10 tons for low earth orbit) and has numerous fairing models to allow for payload? size adaptability. Given its lift capabilities, the H-2A would be placed in a category with most MRBMs and although the most probable targets are close, the shortened range would allow for a steeper and a harder to defend trajectory.

The most technologically advanced ballistic missile Japan possesses is a solid-fuel three-stage rocket, the M-V. Solid-fueled rockets are incredibly rare in the civilian space industry. Japan's M-V is best compared to the most advanced U.S. intercontinental ballistic missile (ICBM), the M-X Peacekeeper. The M-V is capable of launching a 1.8-ton satellite; and, if put on an ICBM trajectory, it is capable of launching a 2.2-ton warhead. Furthermore, reducing targets to a reasonable distance of 7,000 km for Moscow, the M-V can launch a 4-ton payload.[47] It should be noted that Japan strongly denies the M-V is intended for any military application. But this also seemingly conflicts with Japan's Aerospace and Exploration Agency (JAXA) stated intent to maintain an edge in solid-fuel missile technology despite the cancellation of the M-V program.[48] Clearly, although not specifically designed for military purposes, the M-V maintains Japanese proficiency in a solid-state missile capability. If Japan were to develop a military ballistic missile program, it will not have to start from scratch. Future policy decisions concerning Japan's solid-state missile programs will continue to have strong security implications.

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[46] Japan Aerospace Exploration Agency, "Leading Edge, Efficient and Economical Technology: Japanese Main Large-Scale Launch Vehicle, H-IIA," available from http://www.jaxa.jp/projects /rockets/h2a/index_e.html; Internet; accessed 30 October 2008.

[47] Global Security, "Missile Program – Japan" available from http://www.globalsecurity.org/wmd/ world/japan/missile.htm; Internet; accessed on 30 October 08.

[48] Daily Yomiuri Online, "JAXA ends M-V Program," *Daily Yomiuri* available from http://www.yomiuri.co.jp/dy/features/science/20060805TDY04004.htm; Internet; accessed on 8 January 2007.

Officials of the Japanese space agency hope that the new "Advanced Solid Rocket" in development to replace the M-V will fulfill this requirement. Scientists will use the solid-fueled M-V engine and boosters from the H-2A to create a new, cheaper alternative to the M-V while maintaining the technology for future possible security uses. Self argues that the space launch program as "a disguise for pursuit of a ballistic missile capability is strictly absurd."[49] However, Japan's heavy investment in solid-fuel rocket technology is unique in that Japan is the only country to use solid-fuel technology for civilian purposes.[50] Of the nuclear weapons states, Japan is the only country outside that number to have experience in solid-fuel rocket technology. Japan keeps the option of developing a solid-fueled delivery system in the future. Japan can modify any rocket currently in production for a nuclear mission by adding a nuclear payload instead of a civilian one. All the previous peacekeeper missiles are being used for civilian payload missions and numerous countries have interchanged their launch vehicles for nuclear or civilian missions. If consideration is given to the type of launch system required for Japan's probability of nuclear threats, then it already has the capability. Japan is most likely to field Intermediate Range Ballistic Missiles (IRBM) capable of a maximum range of 8,000 km, because Moscow is only 7,000 km away and Beijing is a mere 4,000 km. The H-2A and M-V rockets are capable of meeting these range requirements. Japan has all the technology required to build the delivery system for a viable nuclear weapon.

4. Command, Control, and Strategic Warning

Until recently, Japan lacked a strategic command, control, communication, intelligence, surveillance, and reconnaissance (C4ISR) structure. However, this changed rapidly after the Taepodong scare in the late 1990s. Japan developed and deployed the systems necessary to support a capable missile defense such as satellite monitoring, over-the-horizon (OTH) radar, and the communications infrastructure. Very few authors have

[49] Self and Thompson, "Nuclear Energy," 173.

[50] Only Israel (SHAVIT), the United States (TAURUS), and India (PSLV) use an all solid-fuel rocket for satellite launches. Israel's SHAVIT is based on the JERICHO family of MRBM and is suspected of being a weapons test platform. The U.S. TAURUS rocket is used for satellite launches and the research platform for the U.S. missile defense Ground Based Interceptors. India uses the PSLV for polar orbit satellites and sun-synchronous orbits due to the large throw weight required.

mentioned that these same systems and institutions are extremely similar to a nuclear C4ISR system. The recent addition of this capability ensures Japan's adversaries perceive Japan as a virtual nuclear state and this threat is reinforced by a command and control (C2) system with an improved strategic warning system and a C2 structure on par with the United States.

The first thing essential to any command structure is the delineation and designation of the figure with release authority. This release authority is very dependent on notification intelligence systems, and Japanese systems are now if not soon will be capable of adequately responding to a strategic crisis in real time. Nevertheless, the technical and hardware building blocks are moderately advanced…

The Japanese parliament delineated the release authority for the Japanese missile defense system with a provision to the Self Defense Forces Law in 2002. In any slowly escalating crisis, the defense minister will request the deployment of the missile shield. However, in an emergency situation, the Defense Minister can deploy the system and instruct Japanese ships and batteries to use standing rules of engagement that allow for firing on an incoming missile. Japan's command and control system has undergone changes with the introduction of BMD.[51] It now closely resembles similar command and control systems for U.S. BMD. Both these systems originated and mimic nuclear command and control communication systems and hierarchy. Japan's new experience in BMD command and control will benefit any future nuclear command and control system it implements.

Japan also has spy satellites devoted to national defense. Two of the four satellites currently observe North Korea for only part of the day. The constellation was completed in early 2007. Although, these satellites do not provide continuous coverage, they can feasibly monitor nuclear and missile staging in northeast Asia.[52] Japan has initiated plans to implement a satellite based missile detection system, which the Japanese Diet

[51] Masahiro Matsumura, "Redesigning Japan's Command and Control System for Theater Missile Defense," *Defense and Security Analysis* 16, no. 2 (2000), 151–164.

[52] Eric Talmadge, "Japan Plans September Launch for New Spy Satellite," *Associated Press*, 15 July 2006.

approved in June 2009.[53] They are capable of providing queuing for the other missile defense systems and could offer targets, if Japan decided to use a counter-force strategy. But, counter-force or not, it is essential in nuclear escalation crises to identify enemy force buildup to craft the proper response. Moreover, launch site identification for intelligence purposes is essential in any capable command and control system. Satellites can only provide rough tracking estimates due to their high aperture. The detection system serves to initiate decision-making processes and key earth-based radar systems for follow-up tracking.

An accurate radar system is essential for missile telemetry information. Land-based over-the-horizon radar is undergoing testing in Japan. This radar will be the forefront of the Japanese mainland ballistic warning system. Sufficiently modern radar performing this function can have a detection range of about 1000 km. The future warning and control radar (FPS) in Asahi Chiba Prefecture will imitate the current U.S. radar defense system.[54] Five FPS radar systems will blanket the western air space approaching Japan. The United States currently deploys its new forward deployable X-band radar system to Japan.[55] The X-band radar is based on a modified oil rig and provides a high resolution missile tracking system. Because the X-band radar is mobile, it can be adjusted for changes in perceived threat and avoid counter targeting on the rare days it is deemed seaworthy.

The radar and satellite systems are essential for detecting and tracking missile threats. When the satellite system detects a missile launch, it notifies personnel of a possible missile threat. This threat initiates command notification within a few minutes while the radar sites are notified of the threat. During command notification, the radar sites offer another phenomenology of the possible threat and also offer detailed telemetry of the estimated path of the missile. A decision-making conference using the intelligence

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[53] Isabel Reynolds, "Japan Plans Missile Warning System," Reuters, 2 June 2009, Internet; available online at http://www.reuters.com/article/newsOne/idUSTRE5511T220090602; accessed on 6 June 2009.

[54] Tokyo Kyodo World Service, "Kyodo: Japan To Deploy 11 New Radar Systems To Detect Ballistic Missiles," *Kyodo World Service*, September 2005; available from FBIS JPP20050910000008; "Progress in Introduction of Ballistic Missile Defense System Reviewed," *Tokyo Sekai Shuho*, August 2005, 60–61; available from FBIS JPP20050815000050.

[55] Jim Mannion, "US To Deploy Anti-Missile Radar In Japan Missile Threat," *Agence-France Presse*, July 26, 2006.

provided by both radar and satellite is conducted to determine the veracity of the threat and the appropriate action warranted. In the United States, the decision to launch a retaliatory strike or activate missile defenses occurs almost immediately and likewise in Japan.[56] The most recent 2+2 talks[57] concluded with a "Joint Statement of the Security Consultative Committee Alliance Transformation: Advancing United States-Japan Security and Defense Cooperation" that laid out a roadmap for the joint development of the command and control structure for missile defense. This is an effort by both parties for Japan to emulate the U.S.'s C2 system. In Japan, an almost identical process is being formed. JASDF's Air Defense Command, which is similar in nature to the USAF's Air Combat Command relocated to Yokota AB from Fuchu AB. This move was in part to integrate Japan's air defense structure but also to emulate the 13th Air Force's current missile defense C2 system in Hickam AFB. The USAF and JASDF are also manning a new Bilateral Joint Operations Coordination Center (BJOCC), which has a major missile defense component. These command and control institutions and processes are new to the JSDF. They are not only essential to missile defense success but also to any nuclear strategy. Japan is building all the pieces and learning all the lessons for a credible nuclear deterrent without the nuclear component.

D. MISSILE DEFENSE

The centerpiece of Japanese strategic capability is their new BMD system. Japan employs a tiered defense system. For the threat of ballistic missiles, for instance, land-based, long-range radar and satellites identify missile threats and cue other assets. Aegis destroyers can track and destroy missiles in their midcourse flight; Patriot-3 (PAC-3) missile batteries can engage any missiles that slip past during their terminal phase of flight.

The first of these technologies is a BMD-point defense system. Japan is importing from the United States the PAC-3 upgrade to its existing PAC-2 infrastructure. The

[56] Ministry of Defense, "BMD 2009" available from http://www.mod.go.jp/e/d_policy/bmd/; Internet; accessed 5 March 2009.

[57] The "2+2 Talks" are the informal name for the Japan–U.S. Security Consultative Committee that consists of the U.S. Secretaries of Defense and State and Japan's Minister of Foreign Affairs and Defense.

missiles have been given new hit-to-kill capability, drastically increasing their effectiveness. More to the point, the upgrade has drastically broadened the type of ballistic missiles the system can engage from second-generation surface-to-surface missiles to several third generation[58] intermediate-range missiles. In order to greater ensure Japan's defensive posture it has gained the right to upgrade and manufacture the missiles domestically. Japan will be the only country besides the United States, India and Israel to develop, manufacture, and repair its missile defense system independently.

To become self-sufficient in its defense, Japan is deploying its own batteries and building its own missiles. With U.S. assistance, Japan has completed the upgrade for their four PAC-2 systems and deployed them around the Kanto plain to protect the Tokyo metropolitan area.[59] New batteries are planned, one of the few increases noted in the Japanese defense budget.[60] Domestic production began in 2008 because the U.S. government licensed MHI to build PAC-3s with delivery beginning in 2009. Future deployments could focus on the Nagoya-Osaka region, as well as sensitive defensive areas such as military bases. The eventual deployment of this point defense system as a terminal-phase defense is the defense of last resort. Although it can protect about 90% of the Japanese population, it is only one part of an effective BMD system.

The second part of the defense system is improvement of the midcourse (or midflight) BMD system. Japanese navy ships are equipped with SM-3[61] missiles capable of destroying ballistic missiles on the edge of space as they re-enter the atmosphere. These ships are capable of independently tracking exo-atmospheric objects and rapidly firing on one or numerous targets. The missiles are built to communicate directly with the ship during the initial phase of flight. The SM-3 round then independently identifies the

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[58] Third Generation Intermediate-range missiles refer to the increase of speed of the missile and the ability for defensive systems to intercept them. Second generation surface-to-surface missiles generally refer to increases in accuracy and control.

[59] Associated Press, "Japan to test Missile Interceptor in US," *The Washington Post*, 12 July 2008.

[60] Nihon Keizai Shimbun, "Midterm Defense Buildup Program Reflecting Current Need for Security – FY2010–2014 Program Now being Examined," *Nihon Keizai Shimbun*, 14 August 08; available from FBIS JPP20080814034001.

[61] The SM-3 stands for Standard Missile 3. The missile has the stated capability to destroy space borne warheads kinetically. It has also recently displayed the capability to destroy satellites but according to the Department of Defense this was after heavy modifications.

target warhead, engages it, and directly impacts the target. In December 2007, the JS *Kongo* successfully tested its missile defense. Although the *Kongo* class can carry a maximum of 80 missiles, it will be years before Japan has the necessary missile inventory to fill the four ships. Once the upgrades to all four ships are complete, Japan will be able to defend hundreds of miles of territory. This midcourse defense will complement the PAC-3 improvements and provide Japan with a layered and more effective BMD system.

Japan has the capability to defend itself against increasing types and numbers of ballistic missiles. Although it does not seem currently to provide an impenetrable umbrella, Japan has significantly decreased the threat and deterrence value of any opponent's nuclear force. Moreover, Japan's current defense plans will only result in increased capability, thereby causing further decline in any opponent's deterrence value.

The combination of these legs illustrates the tactical implementation of the Japan Self Defense Force's BMD forces. The early warning radar will identify missile threats in the boost phase or early midcourse phase with a decision required extremely early to utilize the midcourse defense and, in extreme circumstances, rely upon the PAC-3 structure to provide the necessary backup. This quick reaction is necessary due to the extremely fast missile threat times for the area.[62] With the dual coverage of the midcourse defense, one Aegis BMD cruiser can defend against an estimated sixteen missiles supplemented by each PAC-3 battery providing an estimated defense against eight terminal-phase missiles. With this projected BMD force structure, Japan can currently defend against a couple of missiles and is expected to defend against a dozen missiles by the end of JFY 2009, and dozens more by the end of 2010.[63] According to current Japanese plans, defense capability can be expected to continue growing until 2011 when the MOD completes the system.

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[62] Minimum missile flight times from North Korea are 10 minutes and 13 minutes from China.

[63] The two-on-one principle results from the estimated 90% success rate for an individual missile. By adding a second missile, the success rate is increased by 9% to reach a ~99% success rate. Operationally, JMSDF and USN missile destroyers are trained to shoot, look to see if the target has been killed and then shoot again if it has not. Also, if the intercept window is too short, then shooting twice independently will be necessary.

E. JAPAN'S NUCLEAR STRATEGY

Japan's current strategy, with respect to a possible nuclear confrontation with China, seems to be straightforward: Combine a two-layer active missile defense against China's main nuclear force with U.S. extended deterrence as a third layer of assured destruction.[64] However, there seems to be a fourth layer to Japanese strategy not included in most scholarly analysis. Japan's status as a "virtual nuclear state" assures that Japan will have an open ended option in future relations with China. For Japan's "virtual nuclear state" status to have any deterrent value it must not only be a reliable possibility, but one where a strategy could conceivably be created and implemented. The most beneficial nuclear strategy for Japan can be theorized by analyzing its adversary, considering possible weapons, its geographical position, and giving consideration to grand strategy theory.

Japan's future nuclear strategy, if it develops nuclear weapons, is an interesting case to hypothesize. A country's grand strategy usually arises from a number of factors. The first and simplest of these factors is the adversary. China has been Japan's main adversary for more than a century. Although a similar case can be made for Russia and the Soviet Union, there is very little chance of a sudden renewal of Russian interest in the Far East that can conceivably vie for China's preeminence. China's nuclear forces are being modernized and consist of a few ICBMs supported by a few hundred regional-range missiles. Its force structure is not very survivable at present against someone like the U.S., but there is a strong effort to do just that with China's development of nuclear missile submarines and other improvements. It appears that these submarines will be deployed to the South Sea Fleet and will take advantage of the large amount of water space in the South China Sea and avoid the United States and Japan's robust anti-submarine capability along the Ryuku Island Chain and the East China Sea. In sum, this

[64] General consensus among scholars seems to be that Japan will continue to forgo nuclear weapons as long as it continues to succeed in strengthening the U.S.–Japanese alliance. More detailed analysis of these opinions can be found in: Mike M. Mochizuki, "Japan Tests the Nuclear Taboo," *Nonproliferation Review* 14 (July 2007); available online at http://cns.miis.edu/pubs/npr/vol14/142/142mochizuki.pdf; Internet; accessed on 6 June 2009; Llewelyn Hughes, "Why Japan Will Not Go Nuclear (Yet): International and Domestic Constraints on the Nuclearization of Japan" International Security: 31 (Spring 2007), 67; James Schoff, "The U.S.–Japan Alliance and the Future of Extended Deterrence," Institute for Foreign Policy Analysis (2009).

offers a very general picture of China's future nuclear forces. With roughly the same number of missiles, but upgraded and enhanced with multiple re-entry vehicles, supported by a greater communications infrastructure and backed with an actual survivable second strike capability, these forces offer a greater chance that at least one or two weapons will be assuredly strike Japan and the United States.

The second and slightly harder factor is the type of nuclear forces Japan can field. The easiest weapon system to disregard is long-range bombers. Japan does not have the aircraft or the superiority to ensure Japanese nuclear bombers will reach their targets. The idea of a Japanese B-2 bomber is a little far-fetched compared to other options.

Another possibility is the development of nuclear submarines. Japan has maintained a very regular and small attack submarine force. The new class of submarine could be fitted with TLAMs tipped with nuclear warheads to give Japan a more survivable deterrent. A nominal range of 2,000 km would put 90% of the Chinese population at threat. A stumbling block could be Japan's lack of experience and capability with cruise missiles and the challenges with designing miniature warheads. This can be overcome but the alternative would also have to be considered by developing submarine launched ballistic missiles (SLBM). Developing a dedicated strategic ballistic missile submarine force, however, will require tremendous help from the United States. Japan lacks the expertise in underwater vertical launch technology to make the platform effective. SLBMs and Cruise Missiles technologies are both areas that will require substantial research and development or assistance from the United States. Cruise missiles seem to be the lesser of the two, since it is similar to jet aircraft production.

Finally, Japan possesses a well-established ICBM capability. Ballistic missiles are cheap compared to the alternatives. Furthermore, Japan can use the missile defense system to defend against these nuclear weapons as well, which reduces the need for hardened silos. This is fortuitous because Japan will have trouble installing silos in an area so earthquake prone. Furthermore, the best deployment sites for these missiles will be nondescript, uninhabited islands not in the public eye, to ensure the public is not

placed in harm's way. Japan already uses islands such as Iwo Jima and Okinawa to distance military operations from the public and will very likely continue this trend in the deployment of nuclear weapons.

Japan's geographical position also induces a territorial imperative. The addition of a capable missile defense gives Japan greater strategic depth. Historically though, Japan's strategic doctrine was heavily influenced by the idea that Japan's islands and concentrated population centers make it more vulnerable to just a few nuclear weapons. Previous Japanese doctrines have relied upon pre-emptive strategies to stop attacks from reaching its homeland. Just as Israel has relied upon a preemptive strategy, due to its lack of territorial space, Japan has also previously resorted to preemptive strategies to stop enemies far from the water's edge.[65] And most recently, Japanese defense ministers proposed a pre-emptive strategy against the possible nuclear North Korean threat.[66] An offensive strategy like this is what worries Beijing the most about missile defense. Brad Roberts quotes Zhuang Qubing's early Chinese perspective concerning SDI (Qubing 1984, 10):

> The primary military significance of this [missile defense] is the possibility of possessing the ability to launch a first strike… This is quite different from the mutually assured destruction strategy, which aims primarily at launching the second strike… Therefore, the new strategy is not a strategy of defense as publicized by the U.S. administration, but is a strategy which integrates attacks with defense, capable of dealing deadly blows to the enemy.[67]

These concerns made sense given the time required for China to mate its warheads and fuel its missiles. This situation has become more volatile, however, since China has turned to solid state-fueled missiles that eliminate preparation time. This makes a preemptive strategy more tempting if China's adversary can discover it is DF-

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[65] Michael Handel, "The Evolution of Israeli Strategy: The Psychology of Insecurity and the Quest for Absolute Security," in *The Making of Strategy: Rulers, States and War*, ed. Williamson Murray, MacGregor Knox, and Alvin Bernstein (Cambridge: Cambridge University Press, 1995), 534–578.

[66] Anthony Faiola, "In Japan, Tough Talk About Preemptive Capability: China, Russia 'Deplore' N. Korean Missile Tests," *The Washington Post*, 11 July 2006, A14.

[67] Zhang Qubing, "Meiguo 'Xingqiu Dazhan Jihua' Poxi," in *Guoji Wenti Yanjiu*, no. 4. available in translation in *Selected Articles of International Studies* (Beijing, China Translation and Publishing Corporation, 1987).

21/25 deployment sites. The resulting combination of Japan's territorial attributes, the predilection for preemption, the offensive aspect of Japan's missile defense, and China's mobile MRBMs, offer a dangerously quick escalation ladder.

Japan also has a tendency to rely heavily on technology. Derived originally from Japan's population disadvantage against other states, the trend of Japan's declining worker population has reinforced this notion. Japan's leading development in robots and manufacturing efficiency is evidence of its dependence on technology. Militarily, Japan relies on advanced fighter aircraft, cutting-edge destroyers, and now a ballistic missile shield. Of course, the Japanese should eventually embrace what Handel calls the "ultimate technological panacea" in referring to Israel, Handel remarks, "Nuclear weapons must be seen in a psychological context as the 'ultimate guarantee' that their nation can, if necessary, prevent a major conventional defeat and protect itself from annihilation."[68] Japan will not likely face the possibility of low-intensity conflict or small border wars with its neighbors; the most probably war Japan faces is that of major regional conflict. In waging a war in a major regional conflict, Japan must use technology to balance the scales against bigger adversaries.

In order to implement a grand strategy dependent upon missile defense and a virtual nuclear capability, there must be a singular strategy to ensure consistency. But, this singular strategy is missing from all of Japan's strategic documents including its yearly defense White Paper. Japan forms a grand strategy through an informal consensus building process that usually results in a forward thinking and comprehensive strategy. Moreover, Japan does not normally publish its grand strategies formally. Japanese political ideology makes the informal process possible by blurring the distinction between society and state and allows for decision making to travel up, down, and across without formal decisions. Knox addresses this unique process by stating that Japan resembles Germany after 1918 with a similar quasi-racial superiority and its ability to create a national strategy without formal doctrine.[69] As a result, Japan informally focuses

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[68] Handel, "Evolution of Israeli Strategy," 535.

[69] MacGregor Knox, "Continuity and Revolution in Strategy," in *The Making of Strategy: Rulers, States and War*, ed. Williamson Murray, MacGregor Knox, and Alvin Bernstein (Cambridge: Cambridge University Press): 644; Karel Van Wolferen, "No Brakes, No Compass," The National Interest, no.25 (Fall, 1991).

on the best way to deter China by providing for a strong defense and a sufficient virtual nuclear capability. China is effectively deterred because they already believe in the psychological effects of a limited arsenal (as will be discussed in the next chapter) and does not need to be convinced of the Japanese propensity to use such weapons. By continuing to publicly embrace a non-nuclear position but maintaining the capabilities to develop nuclear weapons, Japan has cemented its status as a "virtual" nuclear state. Japan combined this informal and ambiguous nuclear position with a capable independent missile defense making a unique and effective deterrence strategy designed specifically for its perceived adversaries.

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III. STRATEGIC CAPABILITIES, POLICIES AND PERCEPTIONS FOR CHINA

A. INTRODUCTION

Over the past few decades, international security analysts have seen a dramatic shift in China's military. Experts have written countless papers on changes in China's military spending, military capabilities, and even its military strategy. However, unlike China's conventional war strategy, there is little evidence that China's nuclear strategy will shift any time soon. China's strategic capabilities still point to a strategy of minimum deterrence. Any minor improvements in China's capabilities can be directly attributed to increases in defense missile technology on the part of the United States and Japan. This thesis will begin by examining recent changes in China's nuclear triad, evaluating those changes and their impact on the regional security environment. Next, we will take a look at the evolution of Chinese nuclear strategy and the Chinese effort to maintain "minimum" deterrence. Finally, how the Japanese missile defense system may have caused these changes in Chinese nuclear capability. The Chinese strive to maintain minimum deterrence despite the changing security environment and the changes required in Chinese nuclear capabilities as a result of BMD.

B. DESCRIPTION OF CHINESE NUCLEAR FORCES

1. Ballistic Missile Submarines

Submarine launched ballistic missile test launches are few and far between, and China is still experiencing failure in some of the launches.[70] Regardless, the Chinese are determined to turn this trend around. In 2004, China deployed its new ballistic submarine. The Type-094 (or Jin) submarine, launched two years early, is generally

[70] Test problems were originally noted in "China Tests Ballistic Missile Submarine," *The Washington Times*, http://www.washingtontimes.com/news/2004/dec/02/20041202-115302-2338r/; Internet; accessed 24 October 2008; the most recent OSD report still lists the JL-2 as developmental with an initial operational capability in 2009–2010, Office of the Secretary of Defense, *Annual Report to Congress: Military Power of the People's Republic of China 2009* (Washington, D.C.: GPO, 2009), 60.

regarded not to be operational because the SLBM associated with it, the JL-2, is still in development. The JL-2 is based on the DF-31 and has a range of 8,000 km. The Jin would have to patrol north of the Kuriles to put any substantial portion of the continental United States within range. However, Chinese patrols this far north play too heavily to the American Navy's strong suit for open water Anti-submarine warfare. This makes it more likely that the Chinese will use a strategy similar to the Soviet Union, using the South China Sea or Yellow Sea as a strategic bastion, in which case the new PLA(N) SSBNs will hold the region at risk and not pose a direct threat to the continental United States. Interestingly, Japan would fall under this umbrella, and these new submarines go a long way towards giving China a secure second-strike capability albeit against secondary targets, from the perspective of the United States. The serious investment in such a capability hints at China's determination to establish a thoroughly modern strategic force and its regional concerns.

2. Strategic Bombers

The PLAAF strategic bomber force consists of vintage aircraft incapable of defeating modern air defenses. The H-6 (Badger) aircraft is quickly approaching status as a collector's item and is entirely incapable of defeating Japan's air defenses in any number. However, recent improvements in the H-6 are modifications vaguely similar to those implemented by the United States to make the B-52 aircraft conventionally applicable. With the newly developed land attack cruise missile, the bomber is capable of launching missiles from outside air defenses and hitting targets up to 200 km away.[71] It is also worth noting that China is interested in developing stealth technology for strike fighters but not long-range bombers.[72] These modifications signify China's abandonment of nuclear bombers.

[71] "China Tests YJ-63: Land Attack Cruise Missile," *Sinodefense.com*; available from http://www.sinodefence.com/airforce/weapon/kd63.asp; Internet; accessed 24 October 2008.

[72] Yihong Chang, "China Launches New Stealth Fighter Project," *Zhuhai*. 10 December 2002.

3. Land-based Ballistic Missiles

China's land-based ballistic missiles are the predominant leg of the triad. China roughly deploys 110 nuclear-capable ballistic missiles of three different ranges: 18-20 ICBMs, 12-22 IRBMs, and 35-80 MRBMs.[73] The ICBM is the liquid-fueled Dong Feng (DF)-5, thought to be dedicated to the United States with a range of 13,000 km. Although the 12–22 IRBMs are often referred to as capable of striking U.S. soil, the liquid-fueled DF-4 (with its 5,500 km range) is thought to serve as a "retaliatory deterrent against targets in Russia and Asia."[74] Therefore, with only 18–20 missiles dedicated to striking the continental United States, the medium-range missiles are targeted regionally. Of an estimated 108 regional ballistic missiles, 82 are within range of Japan, compared to the 66 missiles within range of India.[75] Although some of these missiles are mobile and thereby slightly distorts the numbers, it seems that China targets Japan with nuclear missiles and is willing to threaten Japan with a greater number of missiles than most other countries in the region.

China's SRBMs are not yet publicly confirmed as being nuclear capable. The U.S. Defense Department 2005 report on China's military power identifies the missiles as conventionally armed.[76] If there is any mention of their nuclear capability, it remains classified. These missiles can largely be ignored for the Sino-Japan strategic balance because they are incapable of reaching Japan regardless of their forward deployment sites.

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[73] Jeffrey Lewis, "The Ambiguous Arsenal," *Bulletin of the Atomic Scientists* (May/June 2003); Jeffrey Lewis, "Letters to the Editor: Nuclear Numerology Chinese Style," *Arms Control Today* (March, 2005); Robert S. Norris, "Chinese Nuclear Forces 2008," *Bulletin of the Atomic Scientists* 64. no. 3 available from http://thebulletin.metapress.com/content/25094v7235832574/fulltext.pdf; Internet; accessed 24 October 2008.

[74] George Perkovich, "The Nuclear and Security Balance," in *The India–China Relationship*, ed. Francine R. Frankel and Harry Harding (New York, Columbia University Press: 2004), 189.

[75] Phillip Saunders and Jing Dong Yuan, "Strategic Force Modernization," in China's Nuclear Future, ed Paul J. Bolt and Albert S. Willner (London: Lynne Rienner Publishers), 106–109.

[76] Office of the Secretary of Defense, *Annual Report to Congress on the Military Power of the People's Republic of China 2005* (Washington, D.C.: GPO, 2005); Hans M. Kristensen and Robert S. Norris, "Chinese nuclear forces, 2003," *Bulletin of the Atomic Scientists* (November/December), 77–80; Lewis, "Letter to the Editor."

Two of the missile types are undergoing upgrading. The liquid-fueled DF-3 is gradually being replaced by the solid-fueled DF-21. The upgrade has lasted a number of years with an estimated 16 DF-3s still in operation. The upgrade of the medium-range missiles before the ICBMs may be a hint at the greater perceived threat from regional powers or reflect the lesser difficulty in researching smaller solid-fuel rockets. The Chinese have begun fielding new solid-fueled long-range missiles. The DF-31 has a range of 8,000 km, a hint that it will replace the DF-4 to improve regional striking capability.[77] The DF-31A is a slightly modified DF-31 with a 12,000 km range, easily placing the U.S. Midwest with its ICBM silos at threat. Jane's Information Group believes the Chinese already have the capability to multiple independent reentry vehicle (MIRV) or multiple re-entry vehicle (MRV) their warheads, thereby challenging any U.S. missile defense system.[78] In 2001, both the CIA and National Intelligence Council agreed that it was possible to place a few of the much smaller DF-31 reentry vehicles into the larger, older DF-5s.[79] Norris remains unsure whether the Chinese have multiple warheads on the new missiles, but the latest DoD analysis still counts the DF-31s with one warhead a piece.[80] It is doubtful the Chinese will build any more of the aging DF-5s, so the upper estimate of reentry vehicles any missile defense will likely face is 150. This fits neatly with the 155-warhead future predictions provided the Defense Intelligence Agency.[81]

The DF-31 is undergoing improvements intended to add a larger range and a MIRV capability. Another modification of the DF-31 will make it suitable for submarine launches as the JL-2.[82] There has also been a recent public revelation of China's

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[77] Norris, "Chinese Nuclear Forces."

[78] Jane's Information Group, *Strategic Weapon Systems* 47 (2007), 12.

[79] Central Intelligence Agency, *National Intelligence Estimate: Foreign Missile Developments and the Ballistic Missile Threat Through 2015* (December 2001); available from www.cia.gov; Internet; accessed 15 July 2008; The National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat Through 2015* (December 2001), 8.

[80] Norris, "Chinese Nuclear Forces"; Office of the Secretary of Defense, *Annual Report to Congress 2009*.

[81] Defense Intelligence Agency, *A Primer on the Future Threat: The Decades Ahead: 1999–2020* (July 1999), 38.

[82] Norris, "Chinese Nuclear Forces."

underground submarine tunnel.[83] Improvements in China's command and control system leave much to be desired as Lewis states the Chinese have never placed their nuclear forces under alert and are unsure of the outcome.[84] Recently the Chinese have made strides in upgrading communication systems but these systems have not yet proven operationally capable in a crisis, much less a post-attack situation.[85] Furthermore, with China's transition from liquid-fueled, unmated-warhead posture to the emerging solid-fueled, ready-to-launch posture, there must be radical changes in how China controls its nuclear forces.

C. CHINA'S NUCLEAR STRATEGY

Currently, China follows a retaliation strategy that can be likened to a delayed second strike. From an operational standpoint, China will retaliate after absorbing a nuclear strike rather than attempting either a launch-under-attack (LUA) or a launch-on-warning (LOW) strategy in which missiles are launched after detection of an attack but before impact. China arguably does not possess nor is developing the requisite early warning capabilities to move toward a LUA/LOW policy. A delayed second strike implemented with an increasing number of accurate and survivable nuclear forces translates to a Chinese nuclear strategy of "minimum deterrence." It is the minimum required to deter adversaries from launching a first strike. Unfortunately, the "minimum" has been changing due to changes in China's security environment and its nuclear capability. The first section will deal with the changes in China's security environment that has necessitated changes in minimum deterrence. The second section will deal those nuclear force changes China has implemented and how they support China's nuclear strategy.

China's nuclear strategy has evolved as a result of changes in the international security environment. The Cold War ended, and the United States and the rest of the

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[83] Bill Gertz, "Commercial photos show Chinese nuke buildup," *The Washington Times*, 16 February 2006.

[84] Lewis, *Minimum Means of Reprisal*, 166.

[85] Ta-chen Cheng, "China's Nuclear Command, Control, and Operations," *International Relations of the Asia-Pacific 2007* 7 no.2, 155–178. Larry M. Wortzel, *China's Nuclear Forces: Operations, Training, Doctrine, Command, Control, and Campaign Planning* (Carlisle: Strategic Studies Institute, 2007).

world reacted negatively to the incident in Tiananmen Square. China's domestic political leadership evolved a response, and as a result, nuclear strategy also had to evolve to the new structure of international relations.[86] For decades, the Chinese depended on minimal deterrence by holding at risk only a few of an adversary's major cities. As a result of this defensive orientation, China's doctrine has been characterized as "anti-nuclear blackmail."[87] China believes in targeting concentrated population centers (counter-value) second-strike deterrence strategy, and reflecting Chinese nuclear capabilities. It also reflects the strong fear of nuclear holocaust in both the Soviet Union and the United States. Luckily, the changes to the international structure in the early 1990s also occurred during Chinese nuclear technological gains. As a result, China was able to expand its nuclear repertoire and adjusting to the changing environment. It broadened its nuclear strategy to what Johnston refers to as "limited deterrence." This requires striking military facilities, infrastructure, and command and control nodes to limit an adversary's ability to control the escalation process better.[88] In developing its military strategy, China, unlike Japan, did not find itself with any specific adversary. Due to all of its possible adversaries, China broadened its nuclear strategy from minimum deterrence to limited deterrence.

Starting with its first nuclear weapon, China has slowly but consciously increased it nuclear force capability. As Chinese strategy has changed so has it changed how it employs nuclear weapons. Research on the interaction between China's strategy and the numbers of nuclear weapons it employed started shortly after China successfully tested its own nuclear weapon in 1964. China's case was unique because it was the first nuclear country without especially strong ties to either the United States or to the Soviet Union. China positioned itself as the leader of the non-aligned movement of third world countries. In disrupting this balance, China heralded future proliferation of nuclear weapons. China attempted to dissuade the rest of the world by proclaiming a new nuclear

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[86] Perkovich, *Nuclear and Security Balance*, 141.

[87] Eric H. Arnett, *Military Capacity and the Risk of War: China, India, Pakistan and Iran,* (Oxford: Oxford University Press, 1997), 58.

[88] Alastair Iain Johnston, "Prospects for Chinese Nuclear Force Modernization: Limited Deterrence versus Multilateral Arms Control," in *China's Military Transition*, ed. David Shambaugh and Richard H. Yang (Oxford: Oxford University Press, 1997).

strategy of minimum deterrence based on a "political assessment—how likely the enemy was to use nuclear weapons, what the political preconditions were for such use, and what the political repercussions might be from such use."[89] Lewis elaborates on this statement by positing that the Chinese emphasize the nature of how just a few nuclear weapons and their tremendous psychological impact in deterring its enemies.[90] Sha Zukang also argues that a small nuclear force can deter a larger one because of the nuclear weapon's awesome destructive power.[91] A key strategic level concept of *houfa zhiren* or "gaining mastery by striking after the enemy has struck," supports this psychological attack. Sha Zukang habitually pointed out that the U.S. BMD system threatens the usefulness of keeping a small nuclear deterrent, and it forces China to expand its nuclear arsenal in response because a BMD system defeats the idea of *houfa zhiren,* if a second strike can be blunted or destroyed completely.[92] Over the past five years, the number and technological capability of China's nuclear weapons have expanded.

This expansion in the numbers of Chinese nuclear weapons heralds a clear shift in Chinese nuclear strategy. Although there is dispute as to whether the Chinese are using "minimum" or "limited" deterrence, from the Chinese perspective, "minimum" may be a constantly changing requirement. This requires a shift in strategy, as a result of a changing security environment and the capability of China's nuclear forces. From the Chinese perspective, the most drastic changes in China's security environment have occurred recently with a normalizing and "rearming" Japan.

D. RESPONSES TO THE JAPANESE BMD SYSTEM

One of the key issues related to China's nuclear deterrence concerns various Japanese proposals to deploy missile defenses. China believes that such developments will undermine the credibility of the Chinese nuclear deterrent and it strongly opposes

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[89] Mark A. Ryan, *Chinese Attitudes toward Nuclear Weapons: China and the United States During the Korean War* (New York: M.E. Sharp, 1989).

[90] Lewis, *Minimum Means of Reprisal*; Evan S. Medeiros, "Evolving Nuclear Doctrine," in *China's Nuclear Future*, ed Paul J. Bolt and Albert S. Willner (London: Lynne Rienner Publishers, 2006), 39–78.

[91] Tseng Shu-Wan, Interview with Sha Zukang: "U.S. Nuclear Proliferation Threatens Global Security-Sha Zukang on Ways China Should Handle It, Stressing Needs to Ensure the Effectiveness of Retaliatory Capacity," *Wen Wei Po,* 11 June 2000; available from FBIS-CPP-2000-0711-000024.

[92] Tseng Shu-Wan, *Interview with Sha Zukang*.

BMD. China has indicated that further development or deployment of such systems may compel China to expand its nuclear arsenal and intensify its nuclear weapons modernization efforts.[93]

The fielding of the Japanese BMD system occurred at the same time as the U.S. BMD system. Therefore, it has not been easy to separate the two from the point of view of seeing the reaction of China strategy solely from one actor or another especially without obvious indicators like the deployment of penetration aids on the DF-21 vice DF-31. As with the previous Japanese study, one must look at the change in Chinese PRC capability. To deter a nonnuclear power from becoming a nuclear power without provoking it to become a nuclear power, a country must publicly maintain a no first use policy to avoid any outright provocation while privately working on a strategy to convince its enemies that it possesses the resolve to use nuclear weapons in the face of attack. This is accomplished by voicing a clear political and diplomatic message combined with a "comprehensive and firm combat readiness" in order to retaliate immediately after a first strike.[94]

China seeks to deter Japan from developing its own nuclear weapons by possessing an overwhelming quantity and diversity of nuclear weapons and delivery systems to ensure that China has a minimum capability to strike Japan with a nuclear weapon. This means China must maintain the ability to strike Japanese territory despite BMDs. China does not use assured destruction or complete destruction of the Japanese islands, as a strategy. From the Chinese psychological perspective, China only needs to use one or two nuclear weapons to deter Japan successfully. This is based on the belief that the Chinese are content with at least one major city destroyed to successfully deter the United States.[95] In comparison, destroying one or two Japanese cities would inflict

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[93] Eric A. McVadon, "Chinese Reactions to New U.S. Initiatives on Missile Defense," in *China's Growing Military Power: Perspectives on Security, Ballistic Missiles and Conventional Capabilities* ed. Andrew Scobell and Larry M. Wortzel, (Carlisle: Strategic Studies Institute, 2002).

[94] Michael S. Chase and Evan Medeiros, "China's Evolving Nuclear Calculus," in *China's Future Nuclear Submarine Force*, ed. Andrew S. Erickson (Newport: Naval Institute Press, 2007), 119.

[95] According to the Chinese participant in a DTRA conference as quoted in Christine Cleary, *Minimum Nuclear Deterrence Research* (Defense Threat Reduction Agency: May 2003); available online at www.dtra.mil/documents/asco/publications /MinimumNuclearDeterrencePhase2.pdf; Internet; accessed 6 June 2009: pp III–31; also Jeffrey Lewis does not mention specifics but discusses at length the difference in Chinese thinking in *Minimum Means of Reprisal*, 11–14.

comparatively more civilian casualties because 43% (60 million) of the Japanese population is located in Tokyo and Osaka. These two cities make up the bulk of the urban population with the city of Nagoya as a very distant third with two million people. In response to the Japanese–U.S. development of BMDs, China has proposed various new technologies to defeat these defense systems. The most prominent of these technologies is a multiple re-entry vehicle to create "dummy" warheads for the kill vehicle to destroy.[96] Therefore, by creating useless extra warheads, the PRC can maintain its nuclear deterrent without escalation by introducing more nuclear weapons. Another type of missile defense countermeasure is penetration aids. According to a leaked PRC report, China has been testing these aids since 1999.[97] All of these improvements are direct responses to the proliferation of BMD and reveals the new Chinese attitude concerning weapons development and procurement as well as changes in nuclear strategy.

E. CHINA'S NUCLEAR FUTURE

These recent changes to China's nuclear forces have resulted in some internal Chinese discussion about the future of their nuclear strategy. Medieros offers a few possibilities for changes in future Chinese nuclear strategy from offering conditions to the "no first use" pledge to development of MIRV warheads or explicit adoption of launch doctrines such as "launch on warning" or "launch under attack."[98] However, these improvements seem to be in response to the development of BMD and not a response to the U.S. Strategic Command's implementation of Global Strike or other U.S. nuclear improvements. The Chinese are determined to maintain an underlying policy of minimum deterrence. Many Chinese analysts note that it is counterproductive to counter BMDs with a large force buildup and that believe China should focus on increasing the

[96] "China's Opposition to US Missile Defense Programs" (Monterey: Center for Nonproliferation Studies, 2006); available from http://cns.miis.edu/research/china/chinamd.htm; Internet; accessed 24 October 2008; Xiandai Fangyu Jishu. 2003. "PRC Analysis of Technology to Counter TMD." Beijing Xiandai Fangyu Jishu, June. FBIS CPP20050509000261.

[97] Bill Gertz, "China Develops Warhead Decoys to Defeat U.S. Defenses," *The Washington Times*, 16 September 1999, A5.

[98] Medeiros, "Evolving Nuclear Doctrine," 73.

survivability of the Chinese ICBM force and augmenting those ICBMs with penetration aids.[99] The Chinese ultimately desire to maintain a doctrinal status quo by slowly increasing its nuclear capability and the survivability of its current nuclear forces.

China should maintain its minimum deterrence policy in the near term. One can also expect the idea of minimum deterrence to continue to shape the ideas for Chinese nuclear strategy in the long term.

[99] Li Bin, Zhao Baogen, and Liu Zhiwei, "China Will Have to Respond," *Bulletin of the Atomic Scientists* 57, no. 6 (November/December, 2001).

IV. THE STRATEGIC RELATIONSHIP AND GENERAL DETERRENCE THEORY

A. INTRODUCTION

Some inductive theorists have attempted longitudinal studies, which consider long-term deterrence relationships, but this requires understanding a range of independent factors working on both parties over time, as well as the interaction between the two parties. The previous two sections attempted to establish the current capabilities and interaction of China and Japan. On the one hand, Japan carefully established a "virtual" nuclear deterrent and recently developed a missile defense system. On the other hand, China maintains a small or "minimum" force that is developing countermeasures to ballistic missile defense. This third section seeks to describe their bilateral strategic relationship in terms of the recent reassessment of deterrence theory.

It is necessary to first establish and clearly define the type of deterrence relevant to this situation, in order to set a boundary for when deterrence is used and when it is not. Second, this chapter will discuss what deterrence theory implies about the Sino-Japanese relationship and its established norms, taking a longitudinal view. Finally, it will evaluate the recent changes in both party's force structures, as detailed in the first two chapters, with deterrence theory in mind.

By looking at the relationship over the long run, we can determine that both countries act in accord with general deterrence theory. Historical changes to the status quo, as well as the most recent changes, show that both countries use deterrence in their strategic relationship. As actors in an antagonistic relationship, they react to the opposing actor's force structure and policies, despite their belief that there is no military solution to their situation. Furthermore, both actors have likely internalized their deterrence based on norms that set mutually understood boundaries.

B. HISTORY OF DETERRENCE THEORY

The theory of deterrence used in this thesis is only the latest in what could be called four successive waves of deterrence theory. The idea of waves of deterrence theory was first proposed by Robert Jervis in 1979, and again as recently as 2008 by Jeffrey Knopf.[100] The first wave appeared immediately after World War II with the introduction of nuclear weapons and the possibility that they would prevent warfare. In other words, nuclear weapons could deter all attacks, even conventional confrontations.[101] The second wave was founded on the basis of the first as the United States institutionalized deterrence as a strategy, and theorists introduced intricate methods for evaluating deterrence.[102] The third wave emerged in the 70s by questioning the usefulness of rational actor theory that deterrence depended upon.[103] Strategic airpower theorists used this strategy to expand the inventory and capability of U.S. nuclear weapons. Other authors, such as Robert Jervis, questioned whether actors correctly interpreted language and rhetoric.[104] By the early 1990s, deterrence would be discarded as a useful theory. But recently, there has been a reevaluation of deterrence theory. This version is not as all-encompassing as previous renditions and is much more realistic.

C. DESCRIPTION OF DETERRENCE THEORY

The fourth wave reintroduces deterrence theory by reevaluating deterrence in light of asymmetric relationships (e.g., vs. deterring terrorism). It applies the criticisms made of the third wave, using the constructivist and English School approaches, and creates a

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[100] Robert Jervis, "Deterrence Theory Revisited," *World Politics* 31, 1979, 289–324; Jeffrey Knopf, *The Fourth Wave in Deterrence Theory: A Critical Appraisal* (2008); available from http://www.allacademic.com /meta/p279094_index.html; Internet; accessed 30 March, 2009.

[101] Bernard Brodie, *The Absolute Weapon: Atomic Power and World Order* (New York: Harcourt, Brace and Co, 1946).

[102] Thomas Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966).

[103] Graham Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (New York: Scott, Foresman, 1971).

[104] Robert Jervis, *Perception and Misperception in International Politics* (Princeton: Princeton University Press, 1976).

norms-based concept of deterrence.[105] In this perspective, deterrence is a boundary-setting activity. Sometimes these boundaries become the norms in a relationship because the actors internalize the norms and then will even predict each other's probable responses and adjust their own strategy or actions accordingly.

Fourth-wave deterrence theory has a norms-based foundation. In other words, deterrence encourages an expected pattern of behavior and serves as a boundary-setting activity, creating "the standard of appropriate behavior for actors with a given identity."[106] Norms both set limits on and encourage certain types of behavior (constrain and enable) and also constitute how actors think about themselves. Evidence of norms recognized by both actors is the most important supporting variable for deterrence theory. Norms ultimately help anticipate the probable response of the opponent.

There is a sort of deterrence far more regular than the sort that captures the most attention from policy-makers and academics. It occurs when one party makes a determined effort to dissuade another party from taking action judged harmful to its interests. Freedman defines this as internalized deterrence.[107] Internalized deterrence depends upon commonly agreed upon norms that allow each actor to consider the likely responses to any action taken.

But deterrence is only one of several principles that manage the use of force. Morgan specifically points out that deterring terrorism requires considering other tools to exert influence.[108] These tools range from preemption to consensual strategies, with deterrence as just one of them. This allows deterrence theory to describe a relationship or possible future actions, rather than be an all-encompassing theory.

The most common type of threat used is general deterrence, or implicit threat.[109] It is shaped by a number of factors, but focuses on the opponent's force structure to

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[105] Colin Gray, *Maintaining Effective Deterrence* (Carlisle: Strategic Studies Institute 2003); Lawrence Freedman, *Deterrence* (Cambridge: Polity Press, 2004); Patrick Morgan, *Deterrence Now* (Cambridge: Cambridge University Press, 2003).

[106] Peter J. Katzenstein, *The Culture of National Security* (New York: Columbia University Press, 1996), 5.

[107] Freedman, *Deterrence*, 31.

[108] Morgan, *Deterrence Now*, 285.

[109] Ibid.

determine the severity of the threat. This requires an assessment of the opponent's capabilities and strategic environment.[110] Freedman, along with others, concentrates on reputation, or how credible the response will be. The possible severity of reprisal (capability) and the credibility of the response (reputation) play into how the other actor assesses its strategic environment. Freedman also points out that "conventional deterrence requires a demonstration of capability, while nuclear deterrence is more a matter of will."[111] Yet, just in the last decade, there has been a subtle shift in this with the introduction of ballistic missile defense. For instance, it is now important to demonstrate the capability of not just a missile defense system, but also the penetration aids used to defeat it. The force structure and resulting capability are the clearest signs of a general deterrence atmosphere.

Successful general deterrence results in nothing much happening, but it is very obvious when it fails. Immediate deterrence usually involves one actor disregarding threats or acting regardless of the threat.[112] A failure in general deterrence involves an actor breaking a norm or a boundary established in the relationship. The response will usually result in an iteration of immediate deterrence, where an actor feels it is necessary to threaten the use of force to maintain a new norm or boundary.[113] Actors seem to be internally aware of the consequences and make decisions based on it.

D. GENERAL DETERRENCE AND THE SINO-JAPANESE RELATIONSHIP

First, deterrence is only one aspect of the overall Sino-Japanese relationship. Nevertheless, deterrence can provide some insight into their interaction and provide a glimpse into their possible reasoning and future decision making within the relationship. Since there have been no explicit threats concerning the use of force, general deterrence is the relevant frame of reference. General deterrence would predict an enduring rivalry in which threats are implicitly made about the other's force structure and the opponent's

110 Freedman, *Deterrence*, 42.

111 Ibid., 39.

112 Ibid., 29.

113 Ibid., 45.

involvement with multiple parties, and where suspicions exist about the "real" reasons for domestic issues. Foreign policy will depict the other party as an adversary.[114]

Both countries have made implicit threats regarding a number of issues, which include sovereignty issues in the East China Sea to improvements in the other's military force, as well as their involvement with third parties (from North Korea to Taiwan and even the United States). General deterrence must be assessed over the long term. Thus, a general deterrence relationship would encourage "norm setting" behavior with shifts in norms evident during changes of the international order or domestic revolution.[115]

General deterrence would also predict that the Japanese and Chinese militaries would react to each other's capabilities and continue to make public statements or evince concerns about the orientation of the other's forces.[116] Moreover, this orientation would continue until the status quo changed and immediate deterrence was required because one country had broken an established "norm" or stepped beyond an understood boundary.[117]

Lawrence Freedman only mentions one such norm, nuclear weapons and the taboo of using them. No country in the world takes the threat of the use of nuclear weapons more seriously than Japan. China has made no threats to use nuclear weapons against Japan but is very careful to imply that U.S. bases in Japan that launch conventional attacks will suffer retaliation.[118] Moreover, the number and orientation of Chinese nuclear weapons imply that at least some of them target Japan. However, both countries realize the tremendous implications of using a nuclear weapon against Japan, and this seems to be one of the most basic norms in the relationship. These implications also might contribute to the Chinese decision to use the minimum necessary nuclear force to demonstrate its strategic capabilities. This would seem to imply the Chinese realize the psychological impact of using just a few nuclear weapons.[119] There is an established

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[114] Morgan, *Deterrence Now*; Freedman, *Deterrence*.

[115] Freedman, Deterrence, 41.

[116] Ibid., 42.

[117] Ibid., 41.

[118] Roger Cliff, *Entering the Dragon's Lair Chinese Anti-access Strategies and Their Implications for the United States* (New York: RAND Corporation, 2007); Japanese Ministry of Defense, *White Paper of Japanese Ministry of Defense 2007* (Tokyo: MOD, 2007).

[119] Shu-Wan, "Interview with Sha Zukang."

norm that says using nuclear weapons against Japan is more injurious than using it against other countries.[120] At the base of the strategic relationship between Japan and China, there is a norm establishing the severity of using a nuclear weapon against Japan that helps determine the need for just a few weapons to successfully deter Japan. This norm informs both countries' decisions about their capabilities.

The NPT has entrenched a norm against nuclear proliferation. But, having proven that Japan is considered a "virtual" nuclear state, and that its leadership considers itself open to the nuclear option, the uniqueness of Japan's position in terms of the international norm against proliferation should be noted. Japan became an advocate of the NPT as a response to China's nuclear test in 1967. However, worry that other non-signatories would opt out of the treaty, leaving Japan as a "second-tier" state, prompted a review of Japan's nuclear options.[121] Japan is less likely to "go nuclear" without major provocation because of the severe implications internationally, and more specifically the strong negative Chinese reaction. However, the recent failures of the improvements proposed to the NPT in 2005, combined with the greater possibility of a Sino-Japanese conflict, and suspicions of the usefulness of U.S. extended deterrence have prompted new debates about the usefulness of a Japanese domestic deterrent.[122] This would result most likely in immediate deterrence threats by the Chinese, or more likely an increase in weapon numbers or a change in strategy away from minimum deterrence.

Nevertheless, Japan's possible proliferation is also important for China's military modernization. An over-threatening nuclear posture by China could cause the very thing China is trying to prevent. China must realize the implications of excessively modernizing its nuclear or conventional forces because it could result in a U.S.–Japan arms race, as noted by Green or the nuclearization of Japan.[123] The minor improvements

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[120] Nina Tannenwald, *The Nuclear Taboo* (Cambridge: Cambridge University Press, 2007).

[121] Anthony Difilippo, *Japan's Nuclear Disarmament Policy and the U.S. Security Umbrella* (Basingstoke: Palgrave Macmillan, 2006); Michael Green and Katsuhisa Furukawa, "Japan: New Nuclear Realism," in *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, ed. Muthiah Alagappa (Stanford: Stanford University Press, 2008), 349; Furukawa "Nuclear Option, Arms Control and Extended Deterrence"." 104.

[122] Green, "Japan: New Nuclear Realism," 356.

[123] Green, "Japan: New Nuclear Realism," 357.

already made to China's nuclear forces have resulted in increased debate in Japan concerning Japan's nuclear option.[124] An expansion of China's nuclear inventory, or its abandonment of a minimal deterrence posture, could conceivably result in Japan's development of a nuclear deterrent. The result is the existence of a norm or unspoken agreement between China and Japan that any attempt on Japan's part to "go nuclear" would result in a breaking of the norm and a disciplinary response by China. It also results in a limit on how much China can modernize its nuclear forces without provoking a Japanese response.

The inviolability of a state's territory is one of the most basic norms of deterrence. Sovereignty informs many bilateral norms for China. For instance, China has long held that third countries interfering in Taiwan will suffer retaliation. In Japan's case, this was illustrated in the 1996 review of the U.S.–Japan mutual defense treaty that added "areas surrounding Japan." China responded quickly by condemning any Japanese interference in a Taiwan conflict. The recent disagreement over the Chunxiao oilfields and Senkaku/Diaoyutai islands are other examples of the seriousness with which both countries treat national sovereignty. In both cases, Japan and China have sent subtle hints reinforcing particular norms for their relationships concerning boundaries that should not be crossed. Any attempt to break the norm or cross the boundary would result in disciplinary action. In other words, both China and Japan have internalized the other's "red lines" for this particular issue and resort to political posturing and force deployments instead of using specific deterrence statements and escalating the issue beyond one dealt within the bounds of a general deterrence relationship.

Another deterrence norm unique to the Sino-Japanese relationship is Japan's status as a "normal" country. China views this as a change in the status quo and has reacted negatively to Japanese actions. Although this is not a case of immediate deterrence, it does lend credence to the belief that China considers the norm to be a disarmed Japan. Recent changes in the Japanese military and military policy have led

[124] Green, "Japan: New Nuclear Realism," Self and Thompson, "Nuclear Energy," 165.

forced China to reassess its capabilities and openly state that these changes will provoke changes in China's military in reaction. This is evidence that the principles of deterrence describe the Sino-Japanese relationship.

A general uneasiness in the Sino-Japanese relationship has resulted from the deployment of a Japanese missile defense. The missile defense created an incentive for China to conduct a first strike before these defenses were completed.[125] This is an example of how general deterrence could have failed and presented China with the option of using preemptive force. Instead, China's Ministry of Foreign Affairs stressed the negative actions that would occur (missile buildup, etc.) if Japan completed the system.[126] The Chinese recently warned Japan of a possible missile-defense-provoked arms race.[127] Despite Japan's new normal-state behavior, China is intent on identifying Japan with a reputation for militarism.

The norms present in the Sino–Japanese relationship reflect a general deterrence atmosphere. Both countries imply and subtly hint at boundaries for each other. The result is that over time, the other country internalizes the boundary and a norm is established. Neither country mentions the devastating impact that atomic weapons had on Japa,n and they do not need to—it is a mutually understood norm. The same goes for the proliferation of nuclear weapons and the norm establishing Japan's status as a non-nuclear power, as well as China's restraint in developing a more robust nuclear arsenal. And, although the sovereignty issues and Japanese remilitarization are not related to the nuclear relationship, they do help describe commonly understood issues and the boundaries of each. These long-established boundaries frame the conversation of both countries and shape the internal dialogue for decision making.

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[125] Kenneth Watman and Dean Wilkening, *Strategic Defenses and First-Strike Stability* (Washington: Rand Corp, 1987).

[126] Shu-Wan, "Interview with Sha Zukang."

[127] Adam Ward, "Japan's Push for Missile Defense," *IISS Strategic Comments* (International Institute for Strategic Studies, October 2003); available from www.iiss.org/stratcom; Internet; accessed 20 July 2006.

E. MISSILE DEFENSE'S EFFECT ON DETERRENCE

Missile defense may be the most effective security guarantee against China, and this makes it the worst development for deterrence between China and Japan. Japan is close to completing a dual-layered missile defense. Although it cannot claim to be 100 percent effective, testing and practice will ensure that its defensive capability improves with time. Moreover, Japan's isolation by the sea and its cities' small geographic footprint make it easier to defend than a larger country like the United States, or closely abutting its potential adversaries like India.[128] Japanese missile defense raises the possibility that a Chinese attack could fail to significantly harm Japan. Right now, the Chinese seem to be convinced that their penetration aids and missile numbers will defeat Japanese missile defense. But this is no guarantee of the future stability of the status quo. A decrease in Chinese nuclear capability reflects a decrease in Chinese ability to successfully deter the Japanese. This possibility does not seem to have entered the Japanese calculus. Missile defense has a negative affect on the deterrence relationship because while Japan is using it as a hedging strategy, it really strengthens Japan's offensive posture.

The missile defense system may be seen as a hedging strategy for Japan. In effect, the missile defense is "just-in-case" things deteriorate with China. It allows Japan to push aggressively for comprehensive security in every quarter. Japan is expanding security cooperation with the United States, pursuing an independent missile defense, and simultaneously investing heavily commercially in China.[129] The U.S. National Intelligence Council pointed out in 1999, "Japan is engaged in the most sophisticated hedging strategy, strengthening security ties to the U.S. while building independent capabilities."[130] Because they give the impression of a lack of commitment, the targets

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[128] The lack of strategic depth is one of the reasons nuclear weapons were previously strategically unattractive for Japan. This reasoning was first laid out in John E. Endicott, "Japan's Nuclear Option: Political, Technological, and Strategic Factors" (New York: Praeger Publishers, 1975).

[129] Eric Heginbotham and Richard J. Samuels, "Japan's Dual Hedge" in *Strategic Asia 2002–03: Asian Aftershocks*, ed. Richard Ellings and Aaron L. Freidberg with Michael Wills (Seattle: The National Bureau of Asian Research, 2003).

[130] National Intelligence Council, "Northeast Asia: Static but Stable" Conference Report 1999; available at http://www.dni.gov/nic/confreports_NEasiastatic.html; Internet; accessed 9 July 2006.

of hedging strategies usually react negatively and this explains why the U.S. complained in this case. China is worse off regardless of whether Japan moves close to the U.S. or develops more in the way of an indigenous capability. This hedging strategy injures Japan's relationship with China while mitigating the risk of a Chinese threat without addressing it directly.

The defensive orientation of missile defense only serves to strengthen Japan's offensive orientation. There is little intention, from the Japanese perspective, of developing an offensive weapons system to take advantage of the greater defensive security of BMD.[131] But China has on numerous occasions referred to Japan's BMD as leading to a nuclear Japan or a more offensive force structure.[132] The safety of a missile defense umbrella defeats the only real threat the Chinese can invoke against Japan. From the Chinese perspective, there is less to deter the Japanese from remilitarizing, and the nuclear option is a greater concern.

China is also worried Japan will develop nuclear weapons. Once a country erects an effective missile defense shield, nuclear weapons take on a more offensive role, severely affecting the offensive-defensive balance. In the absence of missile defense, a new nuclear state must achieve three operational requirements—secure forces, second strike capability, and reliable command and control—for stable deterrence to emerge.[133] These three conditions are required because they decrease the incentive of a first strike. as well as the likelihood of accidental and unauthorized launches. A capable missile defense system offers something of a second strike capability because it offers protection for offensive weapons. And, as discussed in Chapter I, a missile defense system relies upon similar command and control procedures and practices as an offensive one. From the Chinese deterrence perspective, missile defense is a threatening hedging investment.

From Japan's perspective, missile defense is a smart move given China's recent aggressive spending on missile technology and increasing numbers of medium-range missiles. Japan's investment in the possibility of a hostile future has created a self-

131 Kamiya, "Nuclear Japan," 23.

132 Center for Nonproliferation Studies, "China's Opposition to US Missile Defense Programs."

133 Kenneth N. Waltz, *Peace, Stability, and Nuclear Weapons*, IGCC Policy Papers, Institute On Global Conflict and Cooperation, 1995, 16.

fulfilling prophecy. Japan's hedging and perceived offensive posture works against deterrence by expressing doubt in the established norms in the Sino-Japanese relationship. One of these norms is China's perception of Japan's identity. China has used numerous examples to identify Japan as an enemy and missile defense adds one more.[134] Missile Defense has had a negative impact by increasing the possibility of Japan's nuclear armament and had a detrimental impact on how both countries perceive Japan's "normalization" and the associated social norms.

F. MILITARY MODERNIZATION EFFECT ON DETERRENCE

For the Chinese, minimalism has been integral to the process of developing and maintaining a nuclear capability. Chinese policymakers make decisions based on the underlying belief that the minimum essential capability is all that is needed for deterrence.[135] U.S. and Japanese policymakers seemingly reject this view by concentrating on Chinese military modernization. But the Chinese have a long way to go before they can challenge U.S. or Japanese military capability. The nuclear modernization reforms boost Beijing's confidence in its ability to control escalation.[136] In the Chinese view, modernization positively affects the deterrence relationship because China is using a strategy that enhances its own security at a slow enough pace not to threaten others.

China looks at the longer term in maintaining its nuclear capability and only seeks to increase its capability to the minimum. In the 1960s, only a few nuclear weapons were necessary. But as countries were added to the nuclear club, nuclear capabilities increased, and missile defense was accelerated, more and more nuclear weapons became necessary. In China's present case, sustaining minimum deterrence means increasing its capability slightly.[137] The Chinese method is to avoid an arms race by building confidence in

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[134] Daiki Shibuichi, "The Yasukini Shrine Dispute and the Politics of Identity in Japan," *Asian Survey* 45, No. 2, 2005.

[135] Lewis, *Minimum Means of Reprisal.*

[136] Waltz, "Peace, Stability, and Nuclear Weapons."

[137] Yinhong Shi, "The U.S. National Defense System and China's Response," *Pacific Journal* 4 2002, 39–44.

China's deterrence strategy and not threatening anyone else's security. The goal is to seek norms that encourage a general atmosphere of deterrence in the Sino-Japanese relationship.

China has also embraced international norms and security agreements that it shunned until recently. After a century of humiliation by foreign powers, China became very sensitive to any sovereignty issues, and avoided signing international agreements that it felt impinged on its sovereignty. But China has recently shifted from being a "part of the problem" to "part of the solution," by making international agreements that relate to security.[138] In 1996, China signed the Comprehensive Test Ban Treaty (CTBT), which limits it from testing nuclear weapons that would have complicated the development of next-generation warheads. It has taken a more active stance on nonproliferation by instituting safeguards and promoting policies that prevent the spread of nuclear weapons. It has also organized and hosted five rounds of Six Party Talks to prevent North Korea from adding to the proliferation problem. This active stance on nonproliferation minimizes the skepticism and unease with which the established powers view China.[139] The dedication that China has invested in international norms is illustrated by China's willingness to support and abide by treaties like the CBTB, despite neither the U.S. nor China ratifying them.

China's objective is to deter an American nuclear attack but also implicitly deter the Japanese from developing nuclear weapons and remilitarizing. China seeks to accomplish this in two ways: First, through an expansion of its missile capability to include a BMD-defeating capability.[140] This requires that China field this capability at a rate that does not provide Japan with a reason to "go nuclear," or an excuse for an even larger or more capable missile defense. Second, China is encouraging norm building between China and Japan that reinforces China's sovereignty, discusses Japan's remilitarization, and avoids proliferation.

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[138] Shulong Chu and Rong Yu, "China: Dynamic Minimum Deterrence," in *The Long Shadow: Nuclear Weapons and Security in 21st Century Asia*, ed. Muthiah Alagappa (Stanford: Stanford University Press, 2008), 161–187.

[139] Ibid.

[140] Brad Roberts, "Alternative Futures," in *China's Nuclear Future*, ed Paul J. Bolt and Albert S. Willner (London: Lynne Rienner Publishers, 2006), 174.

G. WHAT THE FUTURE HOLDS

China is the primary security concern for Japan. Although there are other concerns, North Korea cannot be dealt with on its own, and Russia has not dedicated resources to the East and does not seem likely to in the future. For the short term, the principal security threat for Japan is China. For China, Japan is the primary security concern among Asian countries. Japan is not a nuclear weapons state and China hopes to keep it that way by embracing a minimum deterrence posture. However, recent changes in Japan's military, including the addition of missile defense, have resulted in improvements to China's nuclear forces.

The Chinese threat drives the Japanese security environment. But this threat will not be resolved without more forthcoming exchanges between China and Japan, beyond the economic exchanges occurring currently. Security meetings between both sides are important in order to change current perceptions. Japan must be willing to accommodate China's concerns about Japan's pseudo-nationalism, and cooperate with China for a more stable northeast Asia. The current situation cannot be reversed, but steps can be taken to reduce tensions by clearly delineating missile numbers and orientation. Just as the United States and the Russia have decreased tensions, China and Japan must recognize the similarities in their own situation and prevent the current spiral from continuing.

The worry is that China will not be able to deter Japan from becoming a nuclear state or, even more frightening, from using such nuclear weapons against China. The only option for the PRC is to create doubt in the effectiveness of a BMD system through missile defense-defeating technology, or an increase in the number of missiles. This reintroduces vulnerability in the Japanese and U.S. systems. Of course, by believing in these technologies so blindly, China may also be deluding itself concerning its actual capabilities. The more aggressive nuclear posture indicates the uneasiness with which China sees the international environment from a strategic nuclear standpoint.

Some intelligent speculation can be proposed about the future interaction of Japan and China. Displays of Chinese and Japanese missile technology will continue into the future but, without an external event, Japanese nuclear weapon development is unlikely. Japan's preferred nuclear capability will consist of ballistic missile submarines because

the Japanese people are vehemently opposed to the presence of nuclear weapons on their home territory and, from a strategic cultural aspect, the Japanese have preferred to defend their islands from the ocean. The Ryukyu Island chain offers an excellent defensive structure against any sort of undersea warfare by the Chinese, and the Japanese Islands have ready access to the deep ocean.

The Chinese, for their part, have clearly laid out in advance their intention to modernize their nuclear forces, to ensure that they can defeat ballistic missile defenses to maintain a deterrent, secure their second strike capability, and maintain their policy of minimum deterrence and no first use. China would obviously react to a Japanese nuclear weapon with apprehension, since Beijing is its only logical target, and they would adjust with either a greater nuclear arsenal or a change in policy.

The most important sovereignty issue for China is Taiwan. Taiwan's independence is inextricably related to China's fear of Japan's resurgent militarism. Taiwan's separation reminds the mainland of a century of humiliation and Japanese colonialism. Taiwan acts as a strong reminder to China of Japan's colonial period, through the close unofficial relationship Japan has with Taiwan and its Democratic Progressive Party. China is primarily concerned with Japan defending Taiwan by missile defense. Although Japan could deploy Aegis destroyers to the Taiwanese Strait, this move would leave Japan dangerously vulnerable. The ships might also be outside Japan's radar-defense network. Therefore they would be more vulnerable, and as a result Japan would be less likely to sacrifice them. The PAC-3 missile batteries are not easily mobile across water, which is why China largely accepts this tier of Japanese missile defense, although there are new fears regarding Japanese export of domestically produced PAC-3 missiles to Taiwan. However, this would not be practical as a crisis response for the defense of Taiwan. In contrast, Japan's SM-3 could be deployed within days of a crisis. A stable general deterrence relationship is required to prevent Japan from crossing this line.

China's nuclear future is tempered by its strategic outlook and mostly by reactions to outside influences. Although the United States is the primary driver for China's security concerns, Japan has an impact as well. China's likely current plan to slowly increase its nuclear capability to meet Japanese increases in missile defense can be

contained through dialogue committed to concentrating on China's "peaceful rise" and encouraging international norms. On the other hand, if China disregards other countries' perceptions of it, and rapidly increases it capability to challenge or "balance" the United States or Japan, then an arms race that China wants to avoid could result.

Japan's security is a controllable issue, if Japan can resolve the disputes it has with China. Japan also has two choices: it can acknowledge the sensitivities that other countries have concerning its forces' orientation, and work through dialogue or agreements to reassure others, or it can disregard others' perceptions of its security posture and continue to encourage xenophobic public opinion. Japan must ultimately become a more "normal" country with regard to security, but this does not mean that Japan's security should come first. Like China, its security lies less with new military capabilities and more with restraints on sovereignty through international norms and agreements.

H. CONCLUSION

The relationship between China and Japan is institutionalized antagonism. Although both countries recognize that they cannot solve their problem militarily, they assess each other's military force structure and respond accordingly. This relationship will result in a stable military antagonism over the long term. Future studies should look at the possibility of a permanent, enduring rivalry in a mature phase consisting of a stable antagonism punctuated by disputes and crises.[141] Many of the indicators and facts established in this thesis also suggest a renewed rivalry between China and Japan extending across all security issues. The result may be a dangerous situation that, if not properly recognized, may end in either war or a peaceful resolution of contentious issues.

The Sino–Japanese nuclear relationship has been a successful case study for fourth-wave deterrence theory, and also reveals the structure of the relationship based on capability and strategy. China realizes the constructive value of deterrence, but Japan does not seem to realize its capability against China, or the value of the norms structuring

[141] Claudia Cioff-Revilla, "The Political Uncertainty of Interstate Rivalries: A Punctuated Equilibrium Model," in *The Dynamics of Enduring Rivalries*, ed. Paul F. Diehl. (Chicago: University of Chicago, 1998) 64–97.

the relationship. Although nations should not seek out a general deterrence relationship, it is the least dangerous in the near term and can be corrected once the issues underlying the security postures are recognized, discussed, and efforts are made to solve them. Unfortunately for the Sino-Japanese relationship, this is easier said than done. The pattern of almost 100 years of an antagonistic relationship punctuated by brief periods of conciliation is hard to break. Cioffa-Revilla points out that enduring rivalries, like the Sino-Japanese, most often end with some conflict.[142] Future studies should analyze norms and internal deterrence for long-lasting rivalries and may usefully illuminate the underlying issues for resolution. Lawrence Freedman's theoretical framework provides the basis for illuminating the problem issues. As a result, policy makers can use deterrence theory for establishing the basis for engagement strategies and conflict resolution.

One final observation: as an officer with an operational expertise in nuclear deterrence and as a student of strategic deterrence, I find that the connection between operational capability and nuclear strategy is difficult to implement. It requires a clear mission statement from commanders and policy makers to ensure that nuclear warfare is not treated as a serious possibility, but that strategy managers nevertheless clearly understand the impact that capability has on ideas like general deterrence and internalized deterrence. This is something that seems to be understood by the Chinese 2nd artillery, but Japan's military has yet to grasp the implications of missile defense at a strategic level. If Japan were not so close to developing a nuclear deterrent, this would be a nonissue, but as it stands, this gives missile defense added value at the strategic level. The Japanese military should continue to concentrate on improving operational concepts, implementation and execution but should also concentrate some attention on the strategic level.

[142] Claudia Cioff-Revilla, "The Political Uncertainty of Interstate Rivalries: A Punctuated Equilibrium Model," in *The Dynamics of Enduring Rivalries*, ed. Paul F. Diehl. (Chicago: University of Chicago, 1998) 64–97.

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